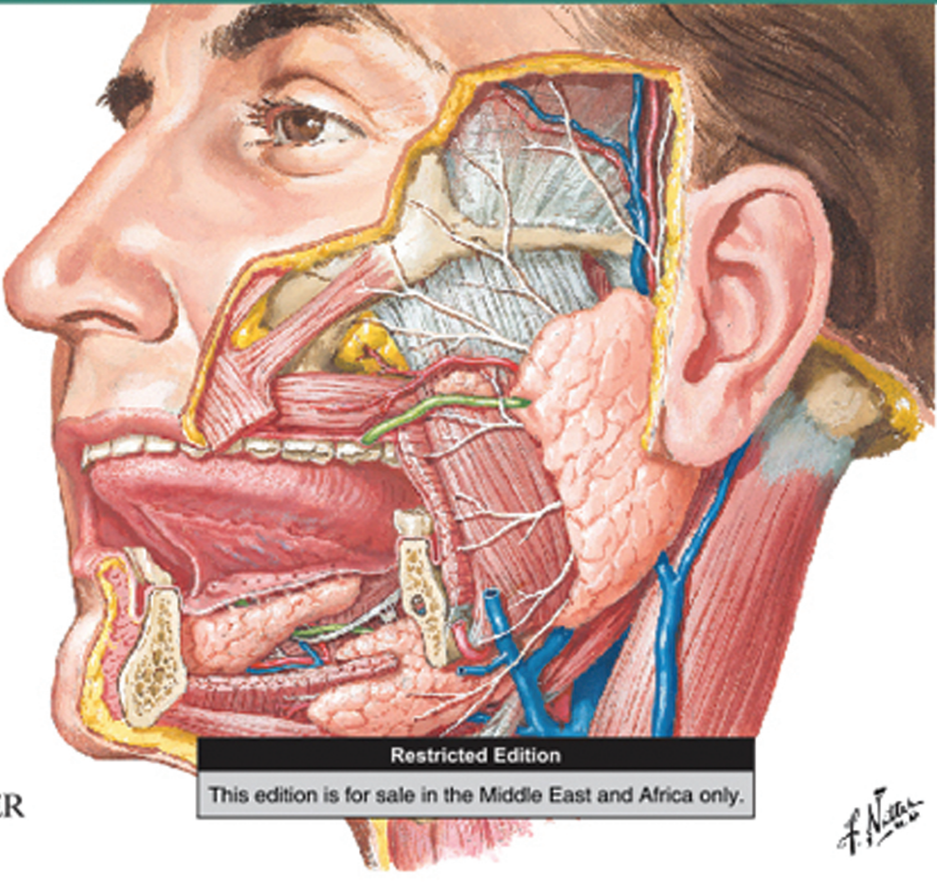
MCQs for Netter's Head and Neck Anatomy for Dentistry



Restricted Edition

This edition is for sale in the Middle East and Africa only.

ELSEVIER

MCQs for Netter's Head and Neck Anatomy for Dentistry

This page intentionally left blank

MCQs for Netter's Head and Neck Anatomy for Dentistry

Elsevier Ltd.

Revised and Updated Edition

ELSEVIER

ELSEVIER

© 2015 Elsevier Ltd. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from the publisher. Details on how to seek permission, and further information about the Publisher's permissions policies and our arrangements with organizations such as the Copyright Clearance Center and the Copyright Licensing Agency can be found at our website: www.elsevier.com/permissions.

This book and the individual contributions contained in it are protected under copyright by the Publisher (other than as may be noted herein).

ISBN 978-0-7020-6899-7

Notices

Knowledge and best practice in this field are constantly changing. As new research and experience broaden our understanding, changes in research methods, professional practices, or medical treatment may become necessary.

Practitioners and researchers must always rely on their own experience and knowledge in evaluating and using any information, methods, compounds, or experiments described herein. In using such information or methods they should be mindful of their own safety and the safety of others, including parties for whom they have a professional responsibility.

With respect to any drug or pharmaceutical products identified, readers are advised to check the most current information provided (i) on procedures featured or (ii) by the manufacturer of each product to be administered, and to verify the recommended dose or formula, the method and duration of administration, and contraindications. It is the responsibility of practitioners, relying on their own experience and knowledge of their patients, to make diagnoses, to determine dosages and the best treatment for each individual patient, and to take all appropriate safety precautions.

To the fullest extent of the law, neither the Publisher nor the authors, contributors, or editors assume any liability for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions, or ideas contained in the material herein.

ELSEVIER your source for books, journals and multimedia in the health sciences

www.elsevierhealth.com

ELSEVIER Book Aid International Working together to grow libraries in developing countries

www.elsevier.com • www.bookaid.org

Restricted Edition

This edition is for sale in the Middle East and Africa only

Printed in India

The publisher's policy is to use **paper manufactured from sustainable forests**

Last digit is the print number: 9 8 7 6 5 4 3 2 1

CONTENTS

Preface vii

Acknowledgments viii

1 Development of the Head and Neck 1

2 Osteology 10

3 Basic Neuroanatomy and Cranial Nerves 19

4 The Neck 31

5 Scalp and Muscles of Facial Expression 40

6 Parotid Bed and Gland 50

7 Temporal and Infratemporal Fossae 60

8 Muscles of Mastication 70

9 Temporomandibular Joint 80

10 Pterygopalatine Fossa 90

11 Nose and Nasal Cavity 97

12 Paranasal Sinuses 107

13 Oral Cavity 114

14 Tongue 128

15 Pharynx 140

16 Larynx 147

17 Cervical Fascia 156

18 Ear 163

19 Eye and Orbit 172

20 Autonomics of the Head and Neck 182

21 Intraoral Injections 188

Index 198

This page intentionally left blank

PREFACE

For students, a good way to test their understanding and knowledge about a particular subject and to prepare for exams is to practice using Multiple Choice Questions (MCQs). This book on *MCQs for Netter's Head and Neck Anatomy for Dentistry* has been written keeping in mind the above purpose.

In this book Elsevier has worked with professional question writers to prepare a collection of 500 MCQs to accompany the subject matter covered in each chapter of the textbook, *Netter's Head and Neck Anatomy for Dentistry,* 2nd edition by Neil S. Norton (ISBN: 978-1-4377-2663-3). The style of MCQs is three distractors and one correct answer so the student will need to mark the correct option accordingly. Each chapter is followed by a feedback section showing the correct answers and a very quick rationale why each answer is correct or incorrect thus elevating student's confidence to answer many more MCQs on the subject. Below each rationale, reference to the page number of the main textbook, *Netter's Head and Neck Anatomy for Dentistry,* is given for the students who want to revise or study the particular topic again.

The aim for the student is to get as many correct as possible, and to revise any subject area where the number of correct marks is low. We sincerely hope that students will find the book extremely useful. We welcome comments and suggestions from students and teachers, which will help in improving this book further.

Elsevier Ltd.

ACKNOWLEDGMENTS

The publisher would like to thank Professor Neil S. Norton and Dr. Jodi L. Olmsted for their insightful feedback in reviewing this book. The publisher would also like to thank Nicole G. Day & her team and also Deepa Singh for their efforts in preparing the multiple choice questions.

CHAPTER 1

Development of the Head and Neck

Multiple Choice

1. Which germ layer does NOT form the head and neck of the developing embryo?
   a. Ectoderm.
   b. Endoderm.
   c. Mesoderm.
   d. Neural crest.

2. The pharyngeal arches start forming during which week of development?
   a. 1st.
   b. 2nd.
   c. 3rd.
   d. 4th.

3. Pharyngeal pouches arise from which germ layer?
   a. Ectoderm.
   b. Endoderm.
   c. Paraxial mesoderm.
   d. Intermediate mesoderm.

4. The external surface of the pharyngeal arches is composed of which germ layer?
   a. Ectoderm.
   b. Endoderm.
   c. Neural crest cells.
   d. Lateral plate mesoderm.

5. Which germ layer makes up the internal surface of the pharyngeal arches?
   a. Ectoderm.
   b. Endoderm.
   c. Neural crest.
   d. Mesoderm.

6. Skeletal components develop from which tissue?
   a. Neural crest.
   b. Paraxial mesoderm.
   c. Ectodermal placodes.
   d. Lateral plate mesoderm.

7. Muscular structures develop from which germ layer?
a. Endoderm.
b. Mesoderm.
c. Neural crest.
d. Neuroectoderm.

8. The trigeminal nerve (V) innervates which pharyngeal arch?
a. 1.
b. 2.
c. 3.
d. 4.

9. Which is the third division (V3) of the trigeminal nerve?
a. Ciliary.
b. Maxillary.
c. Mandibular.
d. Ophthalmic.

10. Which pharyngeal arch regresses after initial development?
a. 1.
b. 2.
c. 4.
d. 5.

11. Each pharyngeal membrane is located between a pharyngeal pouch and which structure?
a. Pharyngeal arch.
b. Pharyngeal cleft.
c. Tubotympanic recess.
d. Primitive palatine tonsils.

12. The internal lining of the pharyngeal membranes is composed of
a. endoderm.
b. mesoderm.
c. neural crest cells.
d. ectomesenchyme.

13. The 2nd pharyngeal pouch forms which structure?
a. Tonsillar fossa.
b. Superior parathyroid gland.
c. Epithelium of the auditory tube.
d. Epithelium of the tympanic cavity.

14. The 2nd pharyngeal cleft is located between which two pharyngeal arches?
a. 1st and 2nd.
b. 2nd and 3rd.
c. 3rd and 4th.
d. 4th and 6th.

15. Viscerocranium skull development describes the formation of the
   a. facial bones.
   b. frontal bone.
   c. bones of the cranial base.
   d. bones of the cranial vault.

16. Which structure is NOT part of the maxillary process?
   a. Vomer.
   b. Maxilla.
   c. Malleus.
   d. Palatine.

17. Which structure is not ossified?
   a. Incus.
   b. Malleus.
   c. Inferior nasal concha.
   d. Sphenomandibular ligament.

18. Which structure does NOT originate from the 2nd pharyngeal arch?
   a. Stapes.
   b. Maxilla.
   c. Styloid process.
   d. Stylohyoid ligament.

19. The earliest the posterior fontanelle might close is at which time?
   a. 1 month.
   b. 3 months.
   c. 4 months.
   d. 12 months.

20. Which structure is formed by the membranous neurocranium?
   a. Ethmoid.
   b. Frontal bone.
   c. Petrous portion of the Temporal bone.
   d. Sphenoid.

21. Each prominence surrounds the stomodeum to form the face, EXCEPT one. Which is the EXCEPTION?
   a. Maxillary.
   b. Mandibular.
   c. Frontonasal.
   d. Lateral nasal.

22. The lower lip develops from which prominence?
   a. Maxillary.
   b. Mandibular.
   c. Frontonasal.
   d. Medial nasal.

23. The maxillary prominence develops into which structure?
- a. Nose.
- b. Cheeks.
- c. Philtrum.
- d. Primary palate.

24. Which structure does NOT develop from the intermaxillary segment?
- a. Philtrum.
- b. Upper jaw.
- c. Lacrimal sac.
- d. Primary palate.

25. The secondary palate is formed by protrusions from which prominence?
- a. Maxillary.
- b. Mandibular.
- c. Medial nasal.
- d. Lateral nasal.

26. The formation of the definitive palate involves all but which structure?
- a. Nasal septum.
- b. Primary palate.
- c. Secondary palate.
- d. Mandibular prominence.

27. Which pharyngeal arch forms the anterior ⅔ of the tongue?
- a. 1.
- b. 2.
- c. 4.
- d. 5.

Feedback

1. ANS: b
- a. Ectoderm gives rise to neural crest which forms the head and neck.
- b. **Correct.** Formation of the head and neck does not involve endoderm.
- c. Lateral plate mesoderm forms the head and neck of the developing embryo.
- d. Neural crest cells form the head and neck of the developing embryo.

REF: p. 2

2. ANS: d
- a. Pharyngeal arches start forming in the 4th, not the 1st week of development.
- b. Pharyngeal arches start forming in the 4th, not the 2nd week of development.
- c. Pharyngeal arches start forming in the 4th, not the 3rd week of development.
- d. **Correct.** Pharyngeal arches start forming in the 4th week of development.

REF: p. 4

3. ANS: b
  a. Ectoderm does not contribute to pharyngeal pouches.
  b. **Correct.** Pharyngeal pouches arise from endoderm.
  c. Paraxial mesoderm does not contribute to pharyngeal pouches.
  d. Intermediate mesoderm does not contribute to pharyngeal pouches.

  REF: p. 4

4. ANS: a
  a. **Correct.** The external surface of the pharyngeal arches is composed of ectoderm.
  b. The internal surface is composed of endoderm.
  c. Neural crest is found in the central part of the pharyngeal arches.
  d. Lateral plate mesoderm is found in the central part of the pharyngeal arches.

  REF: p. 4

5. ANS: b
  a. The external surface of the pharyngeal arches is composed of ectoderm.
  b. **Correct.** The internal surface of the pharyngeal arches is composed of endoderm.
  c. Neural crest is found in the central part of the pharyngeal arches.
  d. Lateral plate mesoderm is found in the central part of the pharyngeal arches.

  REF: p. 4

6. ANS: a
  a. **Correct.** Neural crest tissue forms skeletal components.
  b. Paraxial mesoderm gives rise to muscular structures.
  c. Skeletal components develop from neural crest tissue.
  d. Lateral plate mesoderm gives rise to muscular structures.

  REF: p. 4

7. ANS: b
  a. Endoderm gives rise to the pharyngeal pouches, whereas the muscular structures develop from mesoderm.
  b. **Correct.** Collectively, mesoderm gives rise to muscular structures.
  c. Neural crest tissue forms skeletal components.
  d. Neuroectoderm leads to the development of the nervous system.

  REF: p. 4

8. ANS: a
  a. **Correct.** The trigeminal nerve (V) innervates the 1st arch.
  b. The facial nerve (VII) innervates the 2nd arch.
  c. The glossopharyngeal nerve (IX) innervates the 3rd arch.
  d. The vagus nerve (X) innervates the 4th arch.

  REF: p. 5

9. ANS: c
   a. The ciliary ganglion stems from the first division of the trigeminal nerve (V1).
   b. The maxillary nerve is the second division of the trigeminal nerve (V2).
   c. **Correct.** The mandibular nerve is the third division of the trigeminal nerve (V3).
   d. The ophthalmic division is part of the first division of the trigeminal nerve (V1).

   REF: p. 4

10. ANS: d
   a. The 1st pharyngeal arch develops into the maxillary and mandibular processes.
   b. Muscles of facial expression develop from the second pharyngeal arch.
   c. The thyroid develops from the 4th pharyngeal arch.
   d. **Correct.** The 5th pharyngeal arch regresses after initial development.

   REF: p. 5

11. ANS: b
   a. The pharyngeal arches are not located next to the pharyngeal membrane.
   b. **Correct.** The pharyngeal membrane is located between the pouch and cleft.
   c. The tubotympanic recess is located within the 1st pharyngeal pouch.
   d. The primitive palatine tonsils are located within the 2nd pouch.

   REF: p. 7

12. ANS: a
   a. **Correct.** The internal lining of the pharyngeal membranes is composed of endoderm.
   b. Mesoderm lines the core of the pharyngeal membranes.
   c. Neural crest cells line the core of the pharyngeal membranes.
   d. Ectomesenchyme consists of neural crest cells, which line the core of the pharyngeal membranes.

   REF: p. 7

13. ANS: a
   a. **Correct.** The tonsillar fossa is formed by the 2nd pharyngeal pouch.
   b. The superior parathyroid gland is formed by the 3rd, not the 2nd pharyngeal pouch.
   c. The epithelium of the auditory tube is formed by the 1st, not the 2nd pharyngeal pouch.
   d. The epithelium of the tympanic cavity is formed by the 1st, not the 2nd pharyngeal pouch.

   REF: p. 7

14. ANS: b
   a. The 1st pharyngeal cleft is located between the 1st and 2nd pharyngeal arch.
   b. **Correct.** The 2nd pharyngeal cleft is located between the 2nd and 3rd arch.
   c. The 3rd pharyngeal cleft is located between the 3rd and 4th arch.
   d. The 4th pharyngeal cleft is located between the 4th and 6th arch.

   REF: p. 9

15. ANS: a
   a. **Correct.** Facial bones are part of the viscerocranium.
   b. The frontal bone is part of the neurocranium.
   c. Cranial base bones are part of the neurocranium.
   d. Cranial vault bones are part of the neurocranium.

   REF: p. 10

16. ANS: c
   a. The vomer is a component of the maxillary process, the malleus is not.
   b. The maxilla is a component of the maxillary process, the malleus is not.
   c. **Correct.** The malleus is a component of the mandibular, not maxillary, process.
   d. The palatine is a component of the maxillary process, the malleus is not.

   REF: p. 10

17. ANS: d
   a. The incus is ossified through endochondral ossification.
   b. The malleus is ossified through endochondral ossification.
   c. The inferior nasal concha is ossified through endochondral ossification.
   d. **Correct.** The sphenomandibular ligament is not ossified.

   REF: p. 10

18. ANS: b
   a. The stapes originates from the 2nd pharyngeal arch.
   b. **Correct.** The maxilla originates from the 1st, not the 2nd pharyngeal arch.
   c. The styloid process originates from the 2nd pharyngeal arch.
   d. The stylohyoid ligament originates from the 2nd pharyngeal arch.

   REF: p. 10

19. ANS: a
   a. **Correct.** The time of closure for the posterior fontanelle is 1–2 months.
   b. The time of closure for the sphenoidal fontanelle is 2–3 months.
   c. None of the fontanelles mentioned in this chapter close at 4 months.
   d. The time of closure for the mastoid fontanelle is 12–18 months.

   REF: p. 11

20. ANS: b
   a. The ethmoid is formed by cartilaginous, not membranous, neurocranium.
   b. **Correct.** The frontal bone is formed by membranous neurocranium.
   c. The Petrous portion of the Temporal bone is formed by cartilaginous, not membranous, neurocranium.
   d. The sphenoid is formed by cartilaginous, not membranous, neurocranium.

   REF: p. 12

21. ANS: d

a. The maxillary prominence is a swelling of neural crest that surrounds the stomodeum to form the face in conjunction with the frontonasal and mandibular prominences.
b. The mandibular prominence is a swelling of neural crest that surrounds the stomodeum to form the face in conjunction with the maxillary and frontonasal prominences.
c. The frontonasal prominence is a swelling of neural crest that surrounds the stomodeum to form the face in conjunction with the maxillary and mandibular prominences.
d. **Correct.** The lateral nasal prominence is not one of the 3 neural crest swellings that form the face; the maxillary, mandibular and frontonasal prominences facilitate facial formation.

REF: p. 13

22. ANS: b

a. The upper lip develops from the maxillary prominence.
b. **Correct.** The lower lip develops from the mandibular prominence.
c. The nose develops from the frontonasal prominence.
d. The nose develops from the medial nasal prominence.

REF: p. 13

23. ANS: b

a. The nose develops from the frontonasal, medial nasal and the lateral nasal prominences.
b. **Correct.** The cheeks develop from the maxillary prominence.
c. The philtrum develops from the intermaxillary segment.
d. The primary palate develops from the intermaxillary segment.

REF: p. 13

24. ANS: c

a. The philtrum develops from the intermaxillary segment.
b. The upper jaw develops from the intermaxillary segment.
c. **Correct.** The lacrimal sac develops from a nasolacrimal groove.
d. The primary palate develops from the intermaxillary segment.

REF: p. 13

25. ANS: a

a. **Correct.** Protrusions of the maxillary prominence form the secondary palate.
b. The mandibular prominence forms the lower lip.
c. The medial nasal prominence forms the nose.
d. The lateral nasal prominence forms the nose.

REF: p. 15

26. ANS: d

a. The nasal septum fuses with the primary and secondary palates to form the definitive palate.
b. The primary palate fuses with the secondary palate and the nasal septum to form the definitive palate.
c. The secondary palate fuses with the primary palate and the nasal septum to form the definitive palate.
d. **Correct.** The mandibular prominence forms the lower lip and structures associated with the mandible, rather than the definitive palate.

REF: p. 15

27. ANS: a

a. **Correct.** The 1st pharyngeal arch forms the anterior ⅔ of the tongue.
b. The 2nd pharyngeal arch does not form the tongue.
c. The 4th pharyngeal arch forms the root of the tongue.
d. The 5th pharyngeal arch regresses, forming no structures.

REF: p. 17

CHAPTER 2

Osteology

Mulitiple Choice

1. The total number of bones that compose the skull is
   a. 17.
   b. 24.
   c. 28.
   d. 30.

2. Bones that are small, irregularly shaped, and found along sutures are called
   a. Parietal.
   b. Wormian.
   c. Temporal.
   d. Zygomatic.

3. Which of the following is NOT a regional division of the cranium?
   a. Cranial vault.
   b. Cranial cavity.
   c. Viscerocranium.
   d. Acoustic skeleton.

4. Norma verticalis is the depiction of the skull by observing it from which view?
   a. Lateral.
   b. Superior.
   c. Anterior.
   d. Posterior.

5. Which is NOT a paired bone of the skull?
   a. Nasal.
   b. Maxilla.
   c. Lacrimal.
   d. Sphenoid.

6. Which bone does NOT articulate with the occipital bone?
   a. Frontal.
   b. Parietal.
   c. Temporal.
   d. Sphenoid.

7. Which angle of the parietal bone is located at the pterion?
   a. Frontal.
   b. Mastoid.
   c. Occipital.
   d. Sphenoid.

8. Which suture is located where the bilateral halves of the parietal bones meet?
   a. Coronal.
   b. Sagittal.
   c. Lambdoid.
   d. Squamosal.

9. The styloid process is a projection from which bone?
   a. Maxilla.
   b. Ethmoid.
   c. Temporal.
   d. Sphenoid.

10. Which foramen is NOT associated with the sphenoid bone?
    a. Ovale.
    b. Magnum.
    c. Spinosum.
    d. Rotundum.

11. The zygomatic bone does NOT contain which process?
    a. Frontal.
    b. Palatine.
    c. Maxillary.
    d. Temporal.

12. Which border of the vomer does not articulate with any other bone?
    a. Inferior.
    b. Anterior.
    c. Superior.
    d. Posterior.

13. Which maxillary process supports the teeth?
    a. Frontal.
    b. Palatine.
    c. Alveolar.
    d. Zygomatic.

14. Which part of the mandible articulates with the temporal bone?
    a. Body.
    b. Ramus.
    c. Coronoid process.
    d. Condylar process.

15. Which bone is NOT seen from the norma frontalis view?
  a. Nasal.
  b. Maxilla.
  c. Occipital.
  d. Zygomatic.

16. Which foramen is located between the ethmoid and frontal bones?
  a. Cecum.
  b. Magnum.
  c. Spinosum.
  d. Rotundum.

17. Which foramen can only be seen from the inferior view of the cranial base?
  a. Jugular.
  b. Incisive.
  c. Mastoid.
  d. Anterior Ethmoid.

18. The optic canal is located in which bone?
  a. Maxilla.
  b. Frontal.
  c. Ethmoid.
  d. Sphenoid.

19. Which nerve does NOT pass through the superior orbital fissure?
  a. Optic.
  b. Trochlear.
  c. Abducens.
  d. Oculomotor.

20. The number of cervical vertebrae present is
  a. 6.
  b. 7.
  c. 8.
  d. 9.

21. Which cervical vertebra is known as the axis?
  a. C1.
  b. C2.
  c. C4.
  d. C7.

22. The spinous process is bifid in all EXCEPT which cervical vertebrae?
  a. C2.
  b. C4.
  c. C6.
  d. C7.

23. Which cervical vertebra does NOT have a body?
a. C1.
b. C2.
c. C5.
d. C7.

24. Which major internal ligament of the cervical vertebrae holds the dens in contact with the anterior arch in the atlas?
a. Alar.
b. Apical.
c. Superior longitudinal.
d. Transverse.

25. Which portion of the frontal bone forms the floor of the anterior cranial fossa?
a. Nasal.
b. Basilar.
c. Orbital.
d. Squamous.

26. Which feature of the occipital bone articulates with the atlas?
a. Clivus.
b. Condyles.
c. Nuchal lines.
d. Pharyngeal tubercle.

27. Which is NOT a portion of the squamous part of the temporal bone?
a. Temporal.
b. Glenoid fossa.
c. Alveolar process.
d. Zygomatic process.

28. In which of the 4 parts of the sphenoid bone is the optic canal found?
a. Body.
b. Lesser wing.
c. Greater wing.
d. Pterygoid process.

Feedback

1. ANS: c
a. 11 paired and 6 single bones compose the skull, totaling 28 bones.
b. 11 paired and 6 single bones compose the skull, totaling 28 bones.
c. **Correct.** 11 paired and 6 single bones compose the skull, totaling 28 bones.
d. 11 paired and 6 single bones compose the skull, totaling 28 bones.

REF: p. 26

2. ANS: b
  a. The parietal bone is a large, paired bone that forms the majority of the cranial vault.
  b. **Correct.** Irregularly shaped small bones that are located along the sutures are called wormian bones, or sutural bones.
  c. The base and the lateral walls of the skull are formed in part by the paired temporal bone.
  d. The cheek is formed mainly by the paired zygomatic bones.

REF: pp. 26, 29, 32, 37

3. ANS: c
  a. The cranial vault is a division of the cranium consisting of the upper portion of the skull.
  b. The cranial cavity is a division of the cranium consisting of the interior of the skull.
  c. **Correct.** The viscerocranium is one of the developmental divisions of the skull, not a regional division.
  d. The acoustic skeleton is a division of the cranium that contains the ear ossicles.

REF: p. 26

4. ANS: b
  a. Norma lateralis is the depiction of the skull through observation from the lateral view.
  b. **Correct.** Norma verticalis is the depiction of the skull through observation from the superior view.
  c. Norma frontalis is the depiction of the skull through observation from the anterior view.
  d. Norma occipitalis is the depiction of the skull through observation from the posterior view.

REF: p. 26

5. ANS: d
  a. The nasal bone is a paired bone of the skull.
  b. The maxilla is a paired bone of the skull.
  c. The lacrimal bone is a paired bone of the skull.
  d. **Correct.** The sphenoid is a single bone of the skull.

REF: p. 27

6. ANS: a
  a. **Correct.** The frontal bone is located in the anterior portion of the skull and does not articulate with the occipital bone.
  b. The parietal bone is located anterior to the occipital bone and does articulate with it.
  c. The temporal bone is located in the lateral portion of the skull and does articulate with the occipital bone.
  d. The sphenoid bone is located in the lateral portion of the skull and does articulate with the occipital bone.

REF: p. 27

7. ANS: d

a. The frontal angle of the parietal bone is located at the bregma.
b. The mastoid angle of the parietal bone is located at the asterion.
c. The occipital angle of the parietal bone is located at the lambda.
d. **Correct.** The sphenoid angle of the parietal bone is located at the pterion.

REF: p. 29

8. ANS: b

a. The coronal suture is found where the frontal and parietal bones meet.
b. **Correct.** The sagittal suture is located where the bilateral halves of the parietal bones join.
c. The lambdoid suture is located where the parietal bones meet the occipital bone.
d. The squamosal suture is located where the parietal bone meets the temporal bone.

REF: pp. 29, 49

9. ANS: c

a. The styloid process is a projection from the temporal bone, not the maxilla.
b. The styloid process is a projection from the temporal bone, not the ethmoid.
c. **Correct.** The styloid process is a projection from the inferior surface of the temporal bone.
d. The styloid process is a projection from the temporal bone, not the sphenoid.

REF: p. 32

10. ANS: b

a. The foramen ovale is located on the greater wing of the sphenoid bone.
b. **Correct.** The foramen magnum is located in the occipital bone.
c. The foramen spinosum is located on the greater wing of the sphenoid bone.
d. The foramen rotundum is located on the greater wing of the sphenoid bone.

REF: p. 34

11. ANS: b

a. The frontal process is located on the zygomatic bone and helps to form the orbit.
b. **Correct.** The palatine process is located on the maxilla and helps to form the hard palate.
c. The maxillary process is located on the zygomatic bone and helps to form the orbit.
d. The temporal process is located on the zygomatic bone and helps to form the zygomatic arch.

REF: p. 37

12. ANS: d

a. The inferior border of the vomer articulates with the maxilla and the palatine bone.
b. The anterior border of the vomer articulates with the ethmoid bone.
c. The superior border of the vomer articulates with the sphenoid bone.
d. **Correct.** The posterior border of the vomer does not articulate with any other bones.

REF: p. 40

13. ANS: c
   a. The frontal process forms part of the lacrimal fossa.
   b. The majority of the hard palate is formed from the palatine process.
   c. **Correct.** All of the maxillary teeth are supported by the alveolar process.
   d. The zygomatic process articulates with the maxillary process of the zygomatic bone.

   REF: p. 43

14. ANS: d
   a. The body of the mandible does not articulate with any other bone.
   b. The ramus does not articulate with any other bone.
   c. The coronoid process does not articulate with any other bone.
   d. **Correct.** At the temporomandibular joint, the condylar process articulates with the temporal bone.

   REF: p. 45

15. ANS: c
   a. The nasal bone is located on the anterior portion of the skull and can be seen from the norma frontalis view.
   b. The maxilla is located on the anterior portion of the skull and can be seen from the norma frontalis view.
   c. **Correct.** The occipital bone is located on the posterior portion of the skull and CANNOT be seen from the norma frontalis view.
   d. The zygomatic bone is located on the anterior portion of the skull and can be seen from the norma frontalis view.

   REF: p. 47

16. ANS: a
   a. **Correct.** The foramen cecum is located between the ethmoid and frontal bones and can be seen from the superior view of the cranial base.
   b. The foramen magnum is located within the occipital bone.
   c. The foramen spinosum is located within the sphenoid bone.
   d. The foramen rotundum is located within the sphenoid bone.

   REF: p. 51

17. ANS: b
   a. The jugular foramen is located in the petrous portion of the temporal and the occipital bones and can be seen from both the inferior and superior view of the cranial base.
   b. **Correct.** The incisive foramen is located on the palatine process of the maxilla and can only be seen from the inferior view of the cranial base.
   c. The mastoid foramen is located on the temporal bone and can only be seen from the superior view of the cranial base.
   d. The anterior ethmoid foramina are located between the ethmoid and frontal bones and can only be seen from the superior view of the cranial base.

   REF: pp. 51–54

18. ANS: d
a. The infraorbital foramen, not the optic canal, is located in the maxilla.
b. The supraorbital foramen, not the optic canal, is located in the frontal bone.
c. The anterior and posterior ethmoid foramina are located between the ethmoid and the frontal bones.
d. **Correct.** The optic canal is located in the sphenoid bone.

REF: p. 55

19. ANS: a
a. **Correct.** The optic nerve passes through the optic canal, not the superior orbital fissure.
b. The trochlear nerve passes through the superior orbital fissure.
c. The abducens nerve passes through the superior orbital fissure.
d. The oculomotor nerve passes through the superior orbital fissure.

REF: p. 55

20. ANS: b
a. There are 7 cervical vertebrae, not 6.
b. **Correct.** There are 7 cervical vertebrae.
c. There are 7 cervical vertebrae, not 8.
d. There are 7 cervical vertebrae, not 9.

REF: p. 56

21. ANS: b
a. The vertebra C1 is known as the atlas, not the axis.
b. **Correct.** The vertebra C2 is known as the axis.
c. The vertebra C4 is not known as the axis.
d. The vertebra C7 is also known as the vertebra prominens, not the axis.

REF: p. 56

22. ANS: d
a. The axis (C2) has a spinous process that is large and bifid.
b. Vertebrae C3–C6 have spinous processes that are short and bifid.
c. Vertebrae C3–C6 have spinous processes that are short and bifid.
d. **Correct.** Vertebra C7 has a long spinous process that is not bifid.

REF: p. 56

23. ANS: a
a. **Correct.** The atlas (C1) does not have a body.
b. The axis (C2) has a body, on which the dens is located.
c. Vertebrae C3–C6 have small bodies.
d. The vertebra C7 has a body.

REF: p. 56

24. ANS: d

a. The alar ligament extends from the dens to the medial portion of the occipital condyles.
b. The apical ligament of the dens extends from the dens to the foramen magnum.
c. The superior longitudinal band extends superiorly to attach to the basilar portion of the occipital bone.
d. **Correct.** The dens is held in contact with the anterior arch by the transverse ligament as it extends from one side of the internal surface of the anterior arch to the other side.

REF: p. 59

25. ANS: c

a. The root of the nose is formed as the nasal portion of the frontal bone articulates with the frontal process of the maxilla and the nasal bones.
b. The basilar portion is a division of the occipital, not the frontal bone.
c. **Correct.** The orbital portion of the frontal bone forms the floor of the anterior cranial fossa as well as the roof of the orbit.
d. The majority of the forehead, the supraorbital margin and the superciliary arch are all formed by the squamous portion of the frontal bone. The zygomatic process of the frontal bone and the arachnoid foveae are located on this portion as well.

REF: p. 28

26. ANS: b

a. Part of the brainstem lies against the clivus.
b. **Correct.** The occipital condyles articulate with the atlas.
c. The nuchal lines offer attachment sites for muscles and ligaments.
d. The pharyngeal tubercle provides attachment for the superior constrictor.

REF: p. 30

27. ANS: c

a. The temporal portion of the squamous part of the temporal bone is the large thin area of the bone.
b. The glenoid fossa forms the temporomandibular joint by articulating with the mandibular condyle.
c. **Correct.** The alveolar process is located on the maxilla, not the temporal bone.
d. The zygomatic process makes up the zygomatic arch by articulating with the temporal process of the zygomatic bone.

REF: p. 32

28. ANS: a

a. **Correct.** The optic canal is located in the body of the sphenoid.
b. The optic canal is not found in the lesser wing of the sphenoid.
c. The optic canal is not found in the greater wing of the sphenoid.
d. The optic canal is not found in the pterygoid process of the sphenoid.

REF: p. 34

CHAPTER 3

Basic Neuroanatomy and Cranial Nerves

Multiple Choice

1. What is the other name for a collection of nerve cell bodies located in the central nervous system?
   a. Neuron.
   b. Neuroglia.
   c. Nucleus.
   d. Ganglion.

2. Which is not a type of neuron?
   a. Unipolar.
   b. Bipolar.
   c. Tripolar.
   d. Multipolar.

3. Which of the following neuroglia are located in the peripheral nervous system?
   a. Astrocytes.
   b. Schwann cells.
   c. Oligodendrocytes.
   d. Microglia.

4. Which lobe of the brain is concerned with auditory perceptions, learning, and memory?
   a. Frontal.
   b. Parietal.
   c. Occipital.
   d. Temporal.

5. What is the level of the cervical enlargement in the spinal cord?
   a. C4-T1.
   b. C2-C3.
   c. C5-T1.
   d. C5-T2.

6. How many pairs of spinal nerves are present in the peripheral nervous system?
   a. 33.
   b. 32.
   c. 34.
   d. 31.

7. The collective name for peripheral nerves that exit the brain or brainstem are called
   a. optic.
   b. facial.
   c. spinal.
   d. cranial.

8. How many pairs of cranial nerves exist?
   a. 9.
   b. 10.
   c. 11.
   d. 12.

9. Efferent refers to which functional column?
   a. Motor.
   b. Sensory.
   c. Body-related.
   d. Organ-related.

10. The olfactory nerve (I) is responsible for which sense?
   a. Taste.
   b. Smell.
   c. Vision.
   d. Hearing.

11. The oculomotor (III), trochlear (IV) and abducens (VI) all innervate which facial structure?
   a. Ear.
   b. Eye muscles.
   c. Nose.
   d. Tongue.

12. Which is NOT a division of the trigeminal (V) nerve?
   a. Maxillary.
   b. Mandibular.
   c. Ophthalmic.
   d. Hypoglossal.

13. Which is NOT a direct branch of the ophthalmic (V1) division of the trigeminal nerve (V)?
   a. Frontal.
   b. Lacrimal.
   c. Nasociliary.
   d. Supratrochlear.

14. The maxillary division (V2) of the trigeminal nerve passes through which foramen?
   a. Ovale.
   b. Cecum.
   c. Spinosum.
   d. Rotundum.

15. The ophthalmic nerve (V1) enters the orbit though which opening?
  a. Inferior orbital fissure.
  b. Superior orbital fissure.
  c. Anterior ethmoidal foramina.
  d. Posterior ethmoidal foramina.

16. The supraorbital and supratrochlear are terminal branches of which stem of the ophthalmic division (V1) of the trigeminal nerve?
  a. Frontal.
  b. Lacrimal.
  c. Nasociliary.
  d. Long ciliary.

17. Functional columns that are specific to just cranial nerves are called
  a. special.
  b. general.
  c. somatic.
  d. visceral.

18. Which cranial nerve innervates the superior oblique muscle?
  a. Optic (II).
  b. Trochlear (IV).
  c. Abducens (VI).
  d. Oculomotor (III).

19. The optic nerve (II) begins in which location?
  a. Iris.
  b. Sclera.
  c. Retina.
  d. Cornea.

20. Which is the source of the short ciliary nerve of the nasociliary branch of the ophthalmic division (V1) of the trigeminal nerve?
  a. Ethmoid nerve.
  b. Ciliary ganglion.
  c. Nasociliary nerve.
  d. Trigeminal ganglion.

21. Which is the only sensory branch of the anterior division of the mandibular nerve (V3)?
  a. Buccal.
  b. Masseteric.
  c. Medial pterygoid.
  d. Lateral pterygoid.

22. Which is NOT a branch of the posterior division of the mandibular nerve (V3)?
  a. Lingual.
  b. Inferior alveolar.
  c. Auriculotemporal.
  d. Posterior deep temporal.

23. Which branch of the mandibular nerve (V3) innervates the mandibular teeth?
   a. Buccal.
   b. Lingual.
   c. Masseteric.
   d. Inferior alveolar.

24. Which branch of the mandibular nerve (V3) enters the mandibular foramen?
   a. Lingual.
   b. Inferior Alveolar.
   c. Medial pterygoid.
   d. Lateral pterygoid.

25. Which is NOT a sensation carried by the trigeminal nerve (V)?
   a. Pain.
   b. Touch.
   c. Balance.
   d. Temperature.

26. The nerve cell body of the primary neuron of the trigeminal nerve (V) is located in the
   a. pons.
   b. trigeminal ganglion.
   c. principle sensory nucleus.
   d. ventral posteromedial nucleus.

27. Nerve cell bodies for the primary fibers of the facial nerve (VII) are located in the
   a. ciliary ganglion.
   b. geniculate ganglion.
   c. submandibular ganglia.
   d. pterygopalatine ganglia.

28. Which fibers of the facial nerve (VII) are responsible for carrying taste fibers?
   a. SVE.
   b. SVA.
   c. GVE.
   d. GSA.

29. The vestibulocochlear nerve (VIII) passes through which opening?
   a. Condylar canal.
   b. Jugular foramen.
   c. Superior orbital fissure.
   d. Internal acoustic meatus.

30. The SVE fibers of the glossopharyngeal nerve (IX) are responsible for innervating muscles of which pharyngeal arch?
   a. 1st.
   b. 2nd.
   c. 3rd.
   d. 4th.

31. Which cranial nerve is responsible for taste reception from the posterior ⅓ of the tongue?
a. Vagus (X).
b. Facial (VII).
c. Trigeminal (V).
d. Glossopharyngeal (IX).

32. The cranial part of the spinal accessory nerve (XI) originates at which location?
a. Epiglottic region.
b. Nucleus ambiguus.
c. Upper cervical levels.
d. Dorsal motor nucleus.

33. Which cranial nerve innervates the majority of the tongue muscles?
a. Facial (VII).
b. Mandibular (V3).
c. Hypoglossal (XII).
d. Glossopharyngeal (IX).

34. Which cranial nerve innervates the sternocleidomastoid muscle?
a. Vagus (X).
b. Hypoglossal (XII).
c. Spinal accessory (XI).
d. Glossopharyngeal (IX).

Feedback

1. ANS: c
a. Neuron is the structural and functional unit of the nervous system.
b. Neuroglia are supporting cells of the nervous system.
c. **Correct.** Nucleus is a collection of nerve cell bodies located in the central nervous system.
d. Ganglion is a collection of cell bodies in the peripheral nervous system.

REF: p. 66

2. ANS: c
a. Unipolar is a type of neuron.
b. Bipolar is a type of neuron.
c. **Correct.** Tripolar is not a type of neuron.
d. Multipolar is a type of neuron.

REF: p. 66

3. ANS: b
a. Astrocytes are located in the central nervous system.
b. **Correct.** Schwann cells are located in the peripheral nervous system.
c. Oligodendrocytes are located in the central nervous system.
d. Microglia are located in the central nervous system.

REF: p. 67

4. ANS: d
  a. Frontal lobe is concerned with motor movement.
  b. Parietal lobe is concerned with sensory perceptions.
  c. Occipital lobe is concerned with vision.
  d. **Correct.** Temporal lobe of the brain is concerned with auditory perceptions, learning, and memory.

REF: p. 69

5. ANS: a
  a. **Correct.** C4-T1 is the level of the cervical enlargement in the spinal cord.
  b. C2-C3 is not the level of the cervical enlargement in the spinal cord.
  c. C5-T1 is not the level of the cervical enlargement in the spinal cord.
  d. C5-T2 is not the level of the cervical enlargement in the spinal cord.

REF: p. 70

6. ANS: d
  a. 31 and not 33 pairs of spinal nerves are present in the peripheral nervous system.
  b. 31 and not 32 pairs of spinal nerves are present in the peripheral nervous system.
  c. 31 and not 34 pairs of spinal nerves are present in the peripheral nervous system.
  d. **Correct.** 31 pairs of spinal nerves are present in the peripheral nervous system.

REF: p. 72

7. ANS: d
  a. The optic nerve is one of the cranial nerves.
  b. The facial nerve is one of the cranial nerves.
  c. Peripheral nerves that arise in the spinal cord are called spinal nerves.
  d. **Correct.** The cranial nerves are the peripheral nerves that exit the brain or brainstem.

REF: pp. 73, 74

8. ANS: d
  a. There are 12 pairs of cranial nerves, not 9.
  b. There are 12 pairs of cranial nerves, not 10.
  c. There are 12 pairs of cranial nerves, not 11.
  d. **Correct.** There are 12 pairs of cranial nerves.

REF: p. 74

9. ANS: a
  a. **Correct.** Efferent nerves are motor nerves and are involved in muscular control.
  b. Afferent nerves are sensory nerves.
  c. Somatic nerves are body-related nerves.
  d. Visceral nerves are organ-related nerves.

REF: p. 75

10. ANS: b
  a. The intermediate branch of the facial nerve (VII) and the glossopharyngeal (IX) nerves are responsible for the sense of taste.
  b. **Correct.** The olfactory nerve (I) is responsible for the sense of smell.
  c. The optic nerve (II) is responsible for vision.
  d. The vestibulocochlear nerve (VIII) is responsible for the sense of hearing.

REF: p. 76

11. ANS: b
  a. The ear is innervated by the vestibulocochlear nerve (VIII).
  b. **Correct.** The eye muscles are innervated by the oculomotor (III), trochlear (IV) and abducens (VI) nerves, as well as the optic (II).
  c. The nose is innervated by the olfactory (I) nerve.
  d. The tongue is innervated by the facial (VII), glossopharyngeal (IX), vagus (X) and hypoglossal (XII) nerves.

REF: p. 80

12. ANS: d
  a. The maxillary division (V2) is one of the 3 main divisions of the trigeminal nerve.
  b. The mandibular division (V3) is one of the 3 main divisions of the trigeminal nerve.
  c. The ophthalmic division (V1) is one of the 3 main divisions of the trigeminal nerve.
  d. **Correct.** The hypoglossal nerve is not a division of the trigeminal nerve (V) but is a cranial nerve (XII).

REF: pp. 83, 86, 89

13. ANS: d
  a. The frontal is a branch of the ophthalmic (V1) division.
  b. The lacrimal is a branch of the ophthalmic (V1) division.
  c. The nasociliary is a branch of the ophthalmic (V1) division.
  d. **Correct.** The supratrochlear is a terminal branch of the frontal nerve.

REF: p. 83

14. ANS: d
  a. The mandibular division (V3) passes through the foramen ovale.
  b. No cranial nerves pass through the foramen cecum.
  c. The maxillary division (V2) does not pass through the foramen spinosum.
  d. **Correct.** The maxillary (V2) division of the trigeminal nerve passes through the foramen rotundum as it travels from the middle cranial fossa to the pterygopalatine fossa.

REF: p. 86

15. ANS: b
   a. The ophthalmic nerve (V1) enters the orbit through the superior orbital fissure, not the inferior orbital fissure.
   b. **Correct.** The ophthalmic nerve (V1) enters the orbit through the superior orbital fissure.
   c. The ophthalmic nerve (V1) enters the orbit through the superior orbital fissure, not the anterior ethmoidal foramina.
   d. The ophthalmic nerve (V1) enters the orbit through the superior orbital fissure, not the posterior ethmoidal foramina.

REF: p. 83

16. ANS: a
   a. **Correct.** The supraorbital and supratrochlear are the terminal branches of the frontal branch of the ophthalmic division (V1) of the trigeminal nerve.
   b. The lacrimal branch is 1 of the 3 major branches of the ophthalmic division (V1).
   c. The nasociliary branch is 1 of the 3 major branches of the ophthalmic division (V1).
   d. The long ciliary is a branch of the nasociliary branch of the ophthalmic division (V1).

REF: p. 84

17. ANS: a
   a. **Correct.** Special functional columns are specific to just cranial nerves.
   b. General functional columns have the same functions as spinal nerves.
   c. Somatic is a division of functional columns and is body-related.
   d. Visceral is a division of functional columns and is organ-related.

REF: p. 75

18. ANS: b
   a. The optic nerve (II) is made of SSA fibers which are responsible for vision, but does not innervate the superior oblique muscle.
   b. **Correct.** The GSE fibers of the trochlear nerve (IV) innervate the superior oblique muscle.
   c. The abducens nerve (VI) innervates the lateral rectus muscle, not the superior oblique muscle.
   d. The oculomotor nerve (III) innervates the majority of extraocular eye muscles, but not the superior oblique.

REF: p. 80

19. ANS: c
   a. The optic nerve does not begin in the iris—it begins in the retina.
   b. The optic nerve does not begin in the sclera—it begins in the retina.
   c. **Correct.** The optic nerve (II) begins in the retina.
   d. The ophthalmic nerve (V1) innervates the cornea, not the optic. The optic nerve (II) begins in the retina.

REF: p. 78

20. ANS: b

a. The anterior ethmoid nerve is the source of the external nasal nerve of the nasociliary branch.
b. **Correct.** The ciliary ganglion is the source of the short ciliary nerve.
c. The nasociliary nerve is the source for several nerves, but not the short ciliary.
d. The trigeminal ganglion is a sensory ganglion of the trigeminal nerve, and not the source of the short ciliary nerve.

REF: p. 84

21. ANS: a

a. **Correct.** The buccal nerve is the only sensory branch of the anterior division of the mandibular nerve (V3).
b. The masseteric nerve is a motor branch of the mandibular nerve (V3).
c. The medial pterygoid nerve is a motor branch of the mandibular nerve (V3).
d. The lateral pterygoid nerve is a motor branch of the mandibular nerve (V3).

REF: p. 89

22. ANS: d

a. The lingual nerve is a branch of the posterior division of the mandibular nerve (V3).
b. The inferior alveolar nerve is a branch of the posterior division of the mandibular nerve (V3).
c. The auriculotemporal nerve is a branch of the posterior division of the mandibular nerve (V3).
d. **Correct.** The posterior deep temporal nerve is a branch of the anterior division of the mandibular verve (V3), not the posterior.

REF: p. 89

23. ANS: d

a. The buccal nerve innervates the buccal gingiva, not the teeth.
b. The lingual nerve innervates the lingual gingiva, not the teeth.
c. The masseteric nerve innervates the masseter muscle.
d. **Correct.** The inferior alveolar nerve innervates the mandibular teeth.

REF: p. 89

24. ANS: b

a. The lingual nerve does not enter the mandibular foramen.
b. **Correct.** The inferior alveolar nerve enters the mandibular foramen.
c. The medial pterygoid nerve does not enter the mandibular foramen.
d. The lateral pterygoid nerve does not enter the mandibular foramen.

REF: p. 89

25. ANS: c

a. The sensation of pain is transmitted by the trigeminal nerve (V3).
b. The sensation of touch is transmitted by the trigeminal nerve (V3).
c. **Correct.** The vestibulocochlear nerve (VIII) controls balance.
d. The sensation of temperature is transmitted by the trigeminal nerve (V3).

REF: pp. 82, 95

26. ANS: b

a. The pons is the location of the principal sensory nucleus, where some secondary nerve cell bodies begin.
b. **Correct.** The trigeminal ganglion is the location of the nerve cell body of the primary neuron.
c. Some of the secondary nerve cell bodies begin at the principle sensory nucleus.
d. Tertiary nerve cell bodies begin in the ventral posteromedial nucleus (VPM).

REF: p. 82

27. ANS: b

a. Nerve cell bodies for the primary fibers of the facial nerve (VII) are not located in the ciliary ganglion, but rather in the geniculate ganglion.
b. **Correct.** Nerve cell bodies for the primary fibers of the facial nerve (VII) are located in the geniculate ganglion.
c. The nerve cell bodies for the primary fibers of the facial nerve (VII) are not located in the submandibular ganglia, but rather in the geniculate ganglion.
d. The nerve cell bodies for the primary fibers of the facial nerve (VII) are not located in the pterygopalatine ganglia, but rather in the geniculate ganglion.

REF: p. 93

28. ANS: b

a. SVE fibers are not responsible for carrying taste fibers. They innervate the muscles of facial expression, stapedius, digastric and the stylohyoid muscles.
b. **Correct.** SVA fibers carry the taste fibers from the anterior ⅔ of the tongue.
c. GVE fibers innervate salivary, nasal and lacrimal glands.
d. GSA fibers provide sensory innervation to the tympanic membrane and a portion of the external ear.

REF: p. 93

29. ANS: d

a. The vestibulocochlear (VIII) nerve does not pass through the condylar canal.
b. The glossopharyngeal (IX) and the vagus (X) cranial nerves pass through the jugular foramen.
c. The ophthalmic (V1), oculomotor (III) and trochlear (IV) cranial nerves pass though the superior orbital fissure.
d. **Correct.** The vestibulocochlear (VIII) and the facial (VII) cranial nerves pass though the internal acoustic meatus.

REF: p. 95

30. ANS: c

a. The glossopharyngeal nerve (IX) innervates the muscles of the 3rd pharyngeal arch, not the 1st.
b. The glossopharyngeal nerve (IX) innervates the muscles of the 3rd pharyngeal arch, not the 2nd.
c. **Correct.** The SVE fibers of the glossopharyngeal nerve (IX) innervate the muscles of the 3rd pharyngeal arch.
d. The glossopharyngeal nerve (IX) innervates the muscles of the 3rd pharyngeal arch, not the 4th.

REF: p. 97

31. ANS: d

a. Taste sensation from the posterior ⅓ of the tongue is provided by the glossopharyngeal (IX), not the vagus nerve (X).
b. Taste sensation from the posterior ⅓ of the tongue is provided by the glossopharyngeal nerve (IX), while the anterior ⅔ of the tongue is provided by the facial nerve (VII).
c. Taste sensation from the posterior ⅓ of the tongue is provided by the glossopharyngeal (IX), not the trigeminal nerve (V).
d. **Correct.** Taste sensation from the posterior ⅓ of the tongue is provided by the glossopharyngeal nerve (IX).

REF: p. 97

32. ANS: b

a. The GSA fibers of the vagus nerve (X) originate at receptors in the epiglottic region.
b. **Correct.** The nucleus ambiguus is the location from which the cranial part of the spinal accessory nerve (XI) originates.
c. The upper cervical levels of the spinal cord produce the spinal part of the spinal accessory nerve (XI).
d. The dorsal motor nucleus is the location from which the GVE fibers of the vagus nerve (X) originate.

REF: p. 101

33. ANS: c

a. The facial nerve (VIII) is partially responsible for the sensation of taste, but the hypoglossal nerve (IX) innervates the tongue muscles.
b. The mandibular nerve (V3) innervates the mucous membranes of the anterior ⅔ of the tongue, but the hypoglossal nerve (IX) innervates the tongue muscles.
c. **Correct.** The GSE fibers of the hypoglossal nerve (XII) innervate the majority of the tongue musculature.
d. The glossopharyngeal nerve (IX) is responsible for the sensation of taste on the posterior ⅓ of the tongue, but the hypoglossal nerve (IX) innervates the tongue muscles.

REF: p. 102

34. ANS: c

a. The vagus nerve (X) does not innervate the sternocleidomastoid muscle.
b. The hypoglossal nerve (XII) does not innervate the sternocleidomastoid muscle.
c. **Correct.** The spinal part of the spinal accessory nerve (XI) innervates the sternocleidomastoid muscle.
d. The glossopharyngeal nerve (IX) does not innervate the sternocleidomastoid muscle.

REF: p. 101

CHAPTER 4

The Neck

Multiple Choice

1. Which structure is NOT located in the neck?
   a. Uvula.
   b. Larynx.
   c. Pharynx.
   d. Esophagus.

2. The most superficial structure of the neck is the
   a. skin.
   b. trapezius.
   c. superficial fascia.
   d. sternocleidomastoid.

3. Superficial fascia surrounds which muscle?
   a. Digastric.
   b. Platysma.
   c. Trapezius.
   d. Sternocleidomastoid.

4. Which is NOT a border of the anterior triangle of the neck?
   a. Midline of the neck.
   b. Inferior border of the mandible.
   c. Anterior border of the trapezius muscle.
   d. Anterior border of the sternocleidomastoid.

5. Which triangle is NOT a subdivision of the anterior triangle?
   a. Carotid.
   b. Posterior.
   c. Submental.
   d. Submandibular.

6. Which is NOT one of the structures used to subdivide the anterior triangle?
   a. Hyoid.
   b. Digastric.
   c. Mandible.
   d. Omohyoid.

7. Which of the triangles within the anterior triangle is NOT paired?
a. Carotid.
b. Muscular.
c. Submental.
d. Submandibular.

8. Which is NOT a muscle located in the suprahyoid region?
a. Mylohyoid.
b. Stylohyoid.
c. Geniohyoid.
d. Sternohyoid.

9. Which triangle of the anterior triangle is also known as the digastric triangle?
a. Carotid.
b. Muscular.
c. Submental.
d. Submandibular.

10. Lesser's triangle is a subdivision of which anterior triangle?
a. Carotid.
b. Muscular.
c. Submental.
d. Submandibular.

11. Each forms part of the floor of the submandibular triangle, EXCEPT one. Which is the EXCEPTION?
a. Hyoglossus.
b. Mylohyoid.
c. Middle constrictor.
d. Deep cervical fascia.

12. Which is NOT located within the submandibular triangle?
a. Facial artery.
b. Parotid gland.
c. Submandibular gland.
d. External carotid artery.

13. Which is NOT a border of the posterior triangle?
a. Clavicle.
b. Trapezius.
c. Omohyoid.
d. Sternocleidomastoid.

14. Each nerve is located within the posterior triangle, EXCEPT one. Which is the EXCEPTION?
a. Mylohyoid.
b. Long thoracic.
c. Suprascapular.
d. Spinal accessory.

15. Which is NOT an origin of the trapezius muscle?
  a. Superior nuchal line.
  b. Spine of the scapula.
  c. Spinous process of C7.
  d. External occipital protuberance.

16. Which nerve innervates the anterior belly of the digastric muscle?
  a. Facial.
  b. Trigeminal.
  c. Ansa cervicalis.
  d. Spinal accessory.

17. Which is the insertion of the omohyoid muscle?
  a. Body of the hyoid.
  b. Superior nuchal line.
  c. Lateral ⅓ of the clavicle.
  d. Digastric fossa of the mandible.

18. Which is the action of the omohyoid muscle?
  a. Elevate the hyoid.
  b. Depress the hyoid.
  c. Elevate the scapula.
  d. Depress the mandible.

19. Which is the origin of the stylohyoid muscle?
  a. Styloid process.
  b. Mastoid process.
  c. Inferior genial tubercle.
  d. Mylohyoid line of the mandible.

20. Which is the action of the sternothyroid muscle?
  a. Elevates the hyoid.
  b. Depresses the hyoid.
  c. Depresses the larynx.
  d. Moves the tongue anteriorly.

21. Each muscle extends the head, EXCEPT one. Which is the EXCEPTION?
  a. Obliquus capitis inferior.
  b. Obliquus capitis superior.
  c. Rectus capitis posterior major.
  d. Rectus capitis posterior minor.

22. Which is NOT a branch of the subclavian artery?
  a. Vertebral.
  b. Costocervical.
  c. Thyrocervical.
  d. Superior thyroid.

23. The external carotid artery is surrounded by which gland?
a. Parotid.
b. Thyroid.
c. Sublingual.
d. Submandibular.

24. Which is NOT a vein of the neck?
a. Subclavian.
b. Costocervical.
c. Anterior jugular.
d. External jugular.

25. The brachiocephalic vein is formed when which vein unites with the subclavian?
a. Facial.
b. Lingual.
c. Pharyngeal.
d. Internal jugular.

26. Which vein does NOT pass through the posterior triangle of the neck?
a. Vertebral.
b. Suprascapular.
c. External jugular.
d. Transverse cervical.

27. Which cranial nerve is NOT located in the neck?
a. Vagus.
b. Abducens.
c. Hypoglossal.
d. Glossopharyngeal.

28. Which is NOT a branch of the vagus nerve?
a. Auricular.
b. Spinal part.
c. Pharyngeal.
d. Cardiac vagal.

Feedback

1. ANS: a
a. **Correct.** The uvula is not located in the neck.
b. The larynx is one of the major visceral structures located in the neck.
c. The pharynx is one of the major visceral structures located in the neck.
d. The esophagus is one of the major visceral structures located in the neck.

REF: p. 108

2. ANS: a
- a. **Correct.** The skin is the most superficial structure of the neck.
- b. The trapezius is not the most superficial structure of the neck, the skin is.
- c. The superficial fascia is not the most superficial structure of the neck, the skin is.
- d. The sternocleidomastoid is not the most superficial structure of the neck, the skin is.

REF: p. 108

3. ANS: b
- a. The superficial fascia does not surround the digastric muscle.
- b. **Correct.** The platysma muscle is surrounded by the superficial fascia.
- c. The trapezius muscle is surrounded by the superficial layer of the deep cervical fascia.
- d. The superficial layer of the deep cervical fascia surrounds the sternocleidomastoid muscle.

REF: p. 108

4. ANS: c
- a. The midline of the neck is a border of the anterior triangle.
- b. The inferior border of the mandible is a border of the anterior triangle.
- c. **Correct.** The anterior border of the trapezius muscle is a border of the posterior, not the anterior, triangle.
- d. The anterior border of the sternocleidomastoid is a border of the anterior triangle.

REF: p. 111

5. ANS: b
- a. The carotid triangle is a subdivision of the anterior triangle.
- b. **Correct.** The posterior triangle is not a subdivision of the anterior triangle.
- c. The submental triangle is a subdivision of the anterior triangle.
- d. The submandibular triangle is a subdivision of the anterior triangle.

REF: p. 111

6. ANS: c
- a. The hyoid is one of the structures used to subdivide the anterior triangle.
- b. The digastric muscle is one of the structures used to subdivide the anterior triangle.
- c. **Correct.** The mandible is not a structure used to subdivide the anterior triangle.
- d. The omohyoid muscle is one of the structures used to subdivide the anterior triangle.

REF: p. 111

7. ANS: c
- a. The carotid triangle is a paired triangle.
- b. The muscular triangle is a paired triangle.
- c. **Correct.** The submental triangle is not paired, as it spans both sides of the neck.
- d. The submandibular triangle is a paired triangle.

REF: p. 111

8. ANS: d
   a. The mylohyoid muscle is located in the suprahyoid region.
   b. The stylohyoid muscle is located in the suprahyoid region.
   c. The geniohyoid muscle is located in the suprahyoid region.
   d. **Correct.** The sternohyoid muscle is located in the infrahyoid, not suprahyoid region.

   REF: p. 111

9. ANS: d
   a. The submandibular, not the carotid, triangle is also known as the digastric triangle.
   b. The submandibular, not the muscular, triangle is also known as the digastric triangle.
   c. The submandibular, not the submental, triangle is also known as the digastric triangle.
   d. **Correct.** The anterior and posterior digastric muscles make up 2 of the borders of the submandibular triangle, causing it to often be called the digastric triangle.

   REF: p. 113

10. ANS: d
   a. Lesser's triangle is a subdivision of the submandibular, not carotid, triangle.
   b. Lesser's triangle is a subdivision of the submandibular, not muscular, triangle.
   c. Lesser's triangle is a subdivision of the submandibular, not submental, triangle.
   d. **Correct.** Lesser's triangle is a subdivision of the submandibular triangle.

   REF: p. 113

11. ANS: d
   a. The hyoglossus forms part of the floor of the submandibular triangle.
   b. The mylohyoid forms part of the floor of the submandibular triangle.
   c. The middle constrictor forms part of the floor of the submandibular triangle.
   d. **Correct.** The deep cervical fascia forms the roof, not the floor, of the submandibular triangle.

   REF: p. 113

12. ANS: d
   a. The facial artery is located within the submandibular triangle.
   b. The inferior portion of the parotid gland is located within the submandibular triangle.
   c. The submandibular gland is located within the submandibular triangle.
   d. **Correct.** The external carotid artery is NOT located within the submandibular triangle.

   REF: p. 113

13. ANS: c
   a. The middle ⅓ portion of the clavicle is a border of the posterior triangle.
   b. The anterior border of the trapezius muscle is a border of the posterior triangle.
   c. **Correct.** The omohyoid muscle is not a border of the posterior triangle; however, it is the border for the 2 subdivisions of the posterior triangle.
   d. The posterior border of the sternocleidomastoid is a border of the posterior triangle.

   REF: p. 120

14. ANS: a

a. **Correct.** The mylohyoid nerve is located within the submandibular, not posterior triangle.
b. The long thoracic nerve is located within the posterior triangle.
c. The suprascapular nerve is located within the posterior triangle.
d. The spinal accessory nerve is located within the posterior triangle.

REF: p. 120

15. ANS: b

a. The superior nuchal line is an origin of the trapezius muscle.
b. **Correct.** The spine of the scapula is an insertion, not an origin of the trapezius muscle.
c. The spinous process of C7 is an origin of the trapezius muscle.
d. The external occipital protuberance is an origin of the trapezius muscle.

REF: p. 127

16. ANS: b

a. The facial nerve innervates the posterior, not the anterior, belly of the digastric.
b. **Correct.** The trigeminal nerve innervates the anterior belly of the digastric.
c. The ansa cervicalis nerve innervates the omohyoid muscle, not the anterior belly of the digastric.
d. The spinal accessory nerve innervates the omohyoid muscle, not the anterior belly of the digastric.

REF: p. 127

17. ANS: a

a. **Correct.** The body of the hyoid is the insertion of the omohyoid.
b. The superior nuchal line is an insertion of the sternocleidomastoid, not omohyoid.
c. The lateral ⅓ of the clavicle is an insertion of the trapezius, not omohyoid.
d. The digastric fossa of the mandible is the insertion of the digastric, not omohyoid.

REF: p. 127

18. ANS: b

a. The hyoid is elevated by the digastric, not the omohyoid muscle.
b. **Correct.** The hyoid is depressed by the omohyoid muscle.
c. The scapula is elevated by the trapezius, not the omohyoid muscle.
d. The mandible is depressed by the digastric, not the omohyoid muscle.

REF: p. 127

19. ANS: a

a. **Correct.** The styloid process is the origin of the stylohyoid muscle.
b. The mastoid process is the origin of the digastric muscle.
c. The inferior genial tubercle is the origin of the geniohyoid muscle.
d. The mylohyoid line of the mandible is the origin of the mylohyoid muscle.

REF: p. 128

20. ANS: c

a. The stylohyoid, mylohyoid, and digastric muscles elevate the hyoid. The sternothyroid depresses the larynx.
b. The hyoid is depressed by the omohyoid and the sternohyoid muscles, not the sternothyroid.
c. **Correct.** The larynx is depressed by the sternothyroid.
d. The tongue is moved anteriorly by the geniohyoid, not the sternothyroid muscle.

REF: p. 128

21. ANS: a

a. **Correct.** The obliquus capitis inferior rotates the head, but does not extend it.
b. The obliquus capitis superior does extend the head.
c. The rectus capitis posterior major does extend the head.
d. The rectus capitis posterior minor does extend the head.

REF: p. 131

22. ANS: d

a. The vertebral artery is a branch of the subclavian artery.
b. The costocervical artery is a branch of the subclavian artery.
c. The thyrocervical artery is a branch of the subclavian artery.
d. **Correct.** The superior thyroid artery is a branch of the external carotid, not the subclavian artery.

REF: p. 132

23. ANS: a

a. **Correct.** The external carotid artery is surrounded by the parotid gland.
b. The thyroid gland does not surround the external carotid artery.
c. The sublingual gland does not surround the external carotid artery.
d. The submandibular gland does not surround the external carotid artery.

REF: p. 134

24. ANS: b

a. The subclavian is a vein located in the neck.
b. **Correct.** The costocervical is a branch of the subclavian artery, not a vein.
c. The anterior jugular is a vein located in the neck.
d. The external jugular is a vein located in the neck.

REF: p. 136

25. ANS: d
   a. The internal jugular, not facial, vein unites with the subclavian to form the brachiocephalic vein.
   b. The internal jugular, not lingual, vein unites with the subclavian to form the brachiocephalic vein.
   c. The internal jugular, not pharyngeal, vein unites with the subclavian to form the brachiocephalic vein.
   d. **Correct.** The internal jugular vein unites with the subclavian to form the brachiocephalic vein.

   REF: p. 136

26. ANS: a
   a. **Correct.** The vertebral vein does NOT pass through the posterior triangle.
   b. The suprascapular vein passes through the posterior triangle of the neck.
   c. The external jugular vein passes through the posterior triangle of the neck.
   d. The transverse cervical vein passes through the posterior triangle of the neck.

   REF: p. 136

27. ANS: b
   a. The vagus nerve is located in the neck.
   b. **Correct.** The abducens nerve is not located in the neck.
   c. The hypoglossal nerve is not located in the neck.
   d. The glossopharyngeal nerve is not located in the neck.

   REF: p. 139

28. ANS: b
   a. The auricular nerve is a branch of the vagus nerve.
   b. **Correct.** The spinal part is a branch of the spinal accessory nerve, not the vagus nerve.
   c. The pharyngeal nerve is a branch of the vagus nerve.
   d. The cardiac vagal branches stem from the vagus nerve.

   REF: p. 139

CHAPTER 5

Scalp and Muscles of Facial Expression

Multiple Choice

1. Each is a component of the face, EXCEPT one. Which is the EXCEPTION?
a. Ears.
b. Eyes.
c. Parotid gland.
d. Trigeminal nerve.

2. Which is NOT a bone of the facial skeleton?
a. Nasal.
b. Maxilla.
c. Sphenoid.
d. Zygomatic.

3. The muscles of facial expression are innervated by which cranial nerve?
a. Facial.
b. Abducens.
c. Trigeminal.
d. Vestibulocochlear.

4. The muscles of facial expression are derivatives of which pharyngeal arch?
a. 1st.
b. 2nd.
c. 3rd.
d. 4th.

5. Which is the insertion for muscles of facial expression?
a. Skin.
b. Bone.
c. Deep fascia.
d. Superficial fascia.

6. Which layer is NOT considered to be "scalp proper"?
a. Skin.
b. Pericranium.
c. Aponeurosis.
d. Connective tissue.

7. Which is the thickest layer of the scalp?
   a. Skin.
   b. Pericranium.
   c. Connective tissue.
   d. Loose areolar connective tissue.

8. Which layer of the scalp contains arteries, veins and nerves?
   a. Skin.
   b. Pericranium.
   c. Connective tissue.
   d. Loose areolar connective tissue.

9. Which is NOT a derivative of the external carotid artery?
   a. Occipital.
   b. Supratrochlear.
   c. Posterior auricular.
   d. Superficial temporal.

10. Which artery begins within the parotid gland?
   a. Occipital.
   b. Supraorbital.
   c. Supratrochlear.
   d. Posterior auricular.

11. Which vein forms the retromandibular vein as it unites with the maxillary vein?
   a. Occipital.
   b. Supraorbital.
   c. Posterior auricular.
   d. Superficial temporal.

12. Which nerve does NOT supply the scalp?
   a. Facial nerve.
   b. Cervical plexus.
   c. Trigeminal nerve.
   d. Cervical dorsal rami.

13. Which is the source of the zygomaticotemporal nerve?
   a. Dorsal ramus of C2.
   b. Dorsal ramus of C3.
   c. Maxillary division of the trigeminal nerve.
   d. Ophthalmic division of the trigeminal nerve.

14. Which nerve passes through the suboccipital triangle?
   a. 3rd occipital.
   b. Lesser occipital.
   c. Greater occipital.
   d. Auriculotemporal.

15. Each is an action of the orbicularis oris muscle, EXCEPT one. Which is the EXCEPTION?
  a. Purse the lips.
  b. Close the mouth.
  c. Protrude the lips.
  d. Depress corners of the mouth.

16. Which is the insertion of the zygomaticus minor muscle?
  a. Zygomatic bone.
  b. Lateral upper lip.
  c. Angle of the mouth.
  d. Skin along the mouth.

17. Which is the origin of the corrugator supercilii muscle?
  a. Frontal bone.
  b. Lacrimal bone.
  c. Middle of the eyebrow.
  d. Frontal process of maxilla.

18. Which muscle is responsible for blinking?
  a. Corrugator supercilii.
  b. Lacrimal part of the orbicularis oculi.
  c. Palpebral part of the orbicularis oculi.
  d. Orbital portion of the orbicularis oculi.

19. Which is the origin of the auricularis anterior muscle?
  a. Lacrimal bone.
  b. Mastoid process.
  c. Galea aponeurosis.
  d. Superior nuchal line.

20. Which branch of the facial artery supplies the medial angle of the orbit?
  a. Angular.
  b. Lateral nasal.
  c. Inferior labial.
  d. Superior labial.

21. Which is NOT a branch of the ophthalmic artery?
  a. Lacrimal.
  b. Infraorbital.
  c. Dorsal nasal.
  d. Supraorbital.

22. Which vein enters the parotid gland?
  a. Buccal.
  b. Mental.
  c. Supratrochlear.
  d. Transverse facial.

23. Which vein receives blood from the floor of the orbit?
   a. Infraorbital.
   b. Deep facial.
   c. Inferior ophthalmic.
   d. Superior ophthalmic.

24. Which nerve usually supplies the frontal sinus?
   a. Lacrimal.
   b. Supraorbital.
   c. Infratrochlear.
   d. Anterior Ethmoid.

25. Which nerve passes through the zygomaticofacial foramen?
   a. Nasal.
   b. Inferior palpebral.
   c. Zygomaticofacial.
   d. Zygomaticotemporal.

26. Which portion of the mandibular division of the trigeminal nerve provides mainly motor function?
   a. Mental.
   b. Anterior.
   c. Posterior.
   d. Auriculotemporal.

27. Each branches from the facial nerve, EXCEPT one. Which is the EXCEPTION?
   a. Buccal.
   b. Cervical.
   c. Temporal.
   d. Infraorbital.

28. Which muscle of the nasal group compresses the nostril?
   a. Procerus.
   b. Dilator naris.
   c. Depressor septi.
   d. Compressor naris.

Feedback

1. ANS: a
   a. **Correct.** The ears are not included in the contents of the face.
   b. The eyes are included in the contents of the face.
   c. The parotid gland is included in the contents of the face.
   d. The trigeminal nerve is included in the contents of the face.

   REF: p. 154

2. ANS: c
   a. The nasal bone is part of the facial skeleton.
   b. The maxilla is part of the facial skeleton.
   c. **Correct.** The sphenoid is NOT part of the facial skeleton.
   d. The zygomatic bone is part of the facial skeleton.

   REF: p. 154

3. ANS: a
   a. **Correct.** The facial nerve innervates the muscles of facial expression.
   b. The muscles of facial expression are not innervated by the abducens nerve.
   c. The muscles of facial expression are not innervated by the trigeminal nerve.
   d. The muscles of facial expression are not innervated by the vestibulocochlear nerve.

   REF: p. 154

4. ANS: b
   a. The muscles of facial expression are derivatives of the 2nd, not the 1st pharyngeal arch.
   b. **Correct.** The muscles of facial expression are derivatives of the 2nd pharyngeal arch.
   c. The muscles of facial expression are derivatives of the 2nd, not the 3rd pharyngeal arch.
   d. The muscles of facial expression are derivatives of the 2nd, not the 4th pharyngeal arch.

   REF: p. 154

5. ANS: a
   a. **Correct.** The skin is the insertion of muscles of facial expression.
   b. Bone is one of the origins, not insertions, of muscles of facial expression.
   c. Deep fascia is not present along the face and is not an origin of the muscles of facial expression.
   d. Superficial fascia is one of the origins, not insertions, of muscles of facial expression.

   REF: p. 154

6. ANS: b
   a. The skin is a layer of the "scalp proper."
   b. **Correct.** The pericranium does NOT contribute to the "scalp proper."
   c. The aponeurosis is a layer of the "scalp proper."
   d. The connective tissue is a layer of the "scalp proper."

   REF: p. 156

7. ANS: a
   a. **Correct.** The skin is the thickest layer of the scalp.
   b. The skin, not pericranium, is the thickest layer of the scalp.
   c. The skin, not connective tissue, is the thickest layer of the scalp.
   d. The skin, not loose areolar connective tissue, is the thickest layer of the scalp.

   REF: p. 156

8. ANS: c

a. Arteries, veins and nerves of the scalp are found in the layer of connective tissue, not in the skin.
b. Arteries, veins and nerves of the scalp are found in the layer of connective tissue, not in the pericranium.
c. **Correct.** Arteries, veins and nerves of the scalp are found in the layer of connective tissue.
d. Arteries, veins and nerves of the scalp are found in the layer of connective tissue, not the loose areolar connective tissue.

REF: p. 156

9. ANS: b

a. The occipital artery is a branch of the external carotid artery.
b. **Correct.** The supratrochlear artery is a branch of the internal carotid artery, not the external carotid artery.
c. The posterior auricular artery is a branch of the external carotid artery.
d. The superficial temporal artery is a continuation of the external carotid artery.

REF: p. 157

10. ANS: d

a. The occipital artery branches along the posterior belly of the digastric muscle, not within the parotid gland.
b. The supraorbital artery branches from the ophthalmic artery, not within the parotid gland.
c. The supratrochlear artery does not arise within the parotid gland.
d. **Correct.** The posterior auricular artery arises within the parotid gland.

REF: p. 157

11. ANS: d

a. The occipital vein does not unite with the maxillary vein to form the retromandibular vein.
b. The supraorbital vein does not unite with the maxillary vein to form the retromandibular vein.
c. The posterior auricular vein does not unite with the maxillary vein to form the retromandibular vein.
d. **Correct.** The retromandibular vein is formed as the superficial temporal vein unites with the maxillary vein.

REF: p. 157

12. ANS: a

a. **Correct.** The facial nerve does not supply the scalp.
b. Branches of the cervical plexus supply the scalp.
c. All 3 divisions of the trigeminal nerve supply the scalp.
d. The upper cervical dorsal rami supply the scalp.

REF: p. 159

13. ANS: c

a. The dorsal ramus of C2 is the source of the greater occipital, not the zygomaticotemporal nerve.
b. The dorsal ramus of C3 is the source of the 3rd occipital, not the zygomaticotemporal nerve.
c. **Correct.** The maxillary division of the trigeminal nerve is the source of the zygomaticotemporal nerve.
d. The ophthalmic division of the trigeminal nerve is the source of the supraorbital and supratrochlear nerves, not the zygomaticotemporal nerve.

REF: p. 159

14. ANS: c

a. The greater occipital, not 3rd occipital, nerve passes through the suboccipital triangle.
b. The greater occipital, not lesser occipital, nerve passes through the suboccipital triangle.
c. **Correct.** The greater occipital nerve passes through the suboccipital triangle.
d. The greater occipital, not auriculotemporal, nerve passes through the suboccipital triangle.

REF: p. 159

15. ANS: d

a. The orbicularis oris muscle purses the lips.
b. The orbicularis oris muscle closes the mouth.
c. The orbicularis oris muscle protrudes the lips.
d. **Correct.** The corners of the mouth are depressed by the depressor anguli oris, not the orbicularis oris muscle.

REF: p. 161

16. ANS: b

a. The zygomatic bone is the origin, not insertion, of the zygomaticus minor muscle.
b. **Correct.** The lateral upper lip is the insertion of the zygomaticus minor muscle.
c. The angle of the mouth is the insertion of the levator anguli oris, depressor anguli oris, and risorius muscles, not the zygomaticus minor muscle.
d. The skin along the mouth is the insertion of the orbicularis oris, not the zygomaticus minor muscle

REF: p. 161

17. ANS: a

a. **Correct.** The supraorbital ridge of the frontal bone is the origin of the corrugator supercilii muscle.
b. The lacrimal bone is the origin of the lacrimal part of the orbicularis oris, not the corrugator supercilii muscle.
c. The middle of the eyebrow is the insertion, not the origin, of the corrugator supercilii muscle.
d. The frontal process of the maxilla is the origin of the lacrimal part of the orbicularis oris, not the corrugator supercilii muscle.

REF: p. 164

18. ANS: c

a. The action of the corrugator supercilii muscle is to move the eyebrows medially and inferiorly, not blink.
b. The action of the lacrimal part of the orbicularis oculi muscle is to aid in the flow of tears, not blink.
c. **Correct.** The action of the palpebral part of the orbicularis oculi is to gently close the eyelids, or blink.
d. The action of the orbital portion of the orbicularis oris muscle is to force the eyes closed, not blink.

REF: p. 164

19. ANS: c

a. The lacrimal bone is the origin of the lacrimal part of the orbicularis oris, not the auricularis anterior muscle.
b. The mastoid process is the origin of the auricularis posterior, not anterior, muscle.
c. **Correct.** The galea aponeurosis is the origin of the auricularis anterior muscle.
d. The superior nuchal line is the origin of the occipitalis, not auricularis anterior, muscle.

REF: p. 166

20. ANS: a

a. **Correct.** The angular branch of the facial artery supplies the medial angle of the orbit.
b. The lateral nasal branch of the facial artery supplies the nose and ala, not the medial angle of the orbit.
c. The inferior labial branch of the facial artery supplies the lower lip, not the medial angle of the orbit.
d. The superior labial branch of the facial artery gives rise to the septal branch and supplies the upper lip, not the medial angle of the orbit.

REF: p. 169

21. ANS: b

a. The lacrimal artery is a branch of the ophthalmic artery.
b. **Correct.** The infraorbital artery is a branch of the maxillary, not ophthalmic, artery.
c. The dorsal nasal artery is a branch of the ophthalmic artery.
d. The supraorbital artery is a branch of the ophthalmic artery.

REF: p. 171

22. ANS: d

a. The transverse facial, not buccal, vein enters the parotid gland.
b. The mental vein drains the chin and does not enter the parotid gland.
c. The transverse facial, not supratrochlear, vein enters the parotid gland.
d. **Correct.** The transverse facial vein enters the parotid gland.

REF: p. 173

23. ANS: c

a. The infraorbital vein receives blood from the lower eyelid, nose and upper lip, not the floor of the orbit.
b. The deep facial vein does not receive blood from the floor of the orbit.
c. **Correct.** The inferior ophthalmic vein receives blood from the floor of the orbit.
d. The superior ophthalmic vein receives blood from the roof of the orbit and the scalp, not the floor of the orbit.

REF: p. 174

24. ANS: b

a. The lacrimal branch of the ophthalmic nerve supplies the lacrimal gland, conjunctivae and the upper eyelid, not the frontal sinus.
b. **Correct.** The supraorbital branch of the ophthalmic nerve usually supplies the frontal sinus.
c. The infratrochlear branch of the ophthalmic nerve supplies the eyelids, bridge of the nose, conjunctivae and lacrimal structures, not the frontal sinus.
d. The anterior ethmoid nerve does not supply the frontal sinus.

REF: p. 176

25. ANS: c

a. The nasal nerve is a branch of the infraorbital nerve and does not pass through the zygomaticofacial foramen.
b. The inferior palpebral nerve does not pass through the zygomaticofacial foramen.
c. **Correct.** The zygomaticofacial nerve passes through the zygomaticofacial foramen.
d. The zygomaticotemporal nerve does not pass through the zygomaticofacial foramen.

REF: p. 177

26. ANS: b

a. The anterior portion, not mental, of the mandibular division of the trigeminal nerve provides mainly motor function.
b. **Correct.** The anterior portion of the mandibular division of the trigeminal nerve primarily functions as a motor nerve, with one sensory branch.
c. The posterior portion of the mandibular division provides mainly sensory, not motor, function.
d. The auriculotemporal nerve of the mandibular division provides sensory function.

REF: p. 178

27. ANS: d

a. The buccal nerve is a major branch of the facial nerve that innervates the muscles of the cheek.
b. The cervical nerve is a major branch of the facial nerve that innervates the platysma muscle.
c. The temporal nerve is a major branch of the facial nerve that innervates the forehead.
d. **Correct.** The infraorbital nerve is a branch of the maxillary division of the trigeminal nerve, not the facial nerve.

REF: p. 177

28. ANS: d

a. The procerus muscle draws the eyebrows together, rather than compressing the nostril.
b. The dilator naris muscle dilates, not compresses, the nostril.
c. The depressor septi muscle draws the nasal septum anteriorly, rather than compressing the nostril.
d. **Correct.** The compressor naris muscle compresses the nostril.

REF: p. 164

CHAPTER 6

Parotid Bed and Gland

Multiple Choice

1. Which is the largest salivary gland?
   a. Parotid.
   b. Thyroid.
   c. Sublingual.
   d. Submandibular.

2. Most of the parotid gland overlies which muscle?
   a. Buccal.
   b. Masseter.
   c. Levator anguli oris.
   d. Levator labii superioris.

3. The parotid gland has a capsule made of which layer?
   a. Visceral fascia.
   b. Parietal fascia.
   c. Superficial fascia.
   d. Deep cervical fascia.

4. The ramus of the mandible forms which border of the parotid bed?
   a. Medial.
   b. Lateral.
   c. Superior.
   d. Anterior.

5. Which is a lobe of the parotid gland?
   a. Deep.
   b. Lateral.
   c. Anterior.
   d. Transverse.

6. The parotid gland produces which secretion(s)?
   a. Serous.
   b. Mucous.
   c. Sebaceous.
   d. Serous and mucous.

7. The parotid gland is shaped like a
   a. ball.
   b. tube.
   c. cube.
   d. pyramid.

8. As the facial nerve enters the parotid fossa, it passes between the posterior belly of the digastric muscle and which other muscle?
   a. Masseter.
   b. Buccinator.
   c. Omohyoid.
   d. Stylohyoid.

9. Which is NOT one of the branches of the temporofacial and cervicofacial trunks of the facial nerve that arise in the parotid gland?
   a. Buccal.
   b. Maxillary.
   c. Temporal.
   d. Mandibular.

10. The parotid duct is also known as
   a. Stensen's duct.
   b. Duct of Rivinus.
   c. Wharton's duct.
   d. Bartholin's duct.

11. The parotid duct enters the oral cavity adjacent to which structure?
   a. Maxillary molars.
   b. Mandibular molars.
   c. Floor of the mouth.
   d. Maxillary premolars.

12. Which artery supplies the parotid bed?
   a. Facial.
   b. Subclavian.
   c. Internal carotid.
   d. External carotid.

13. Which artery is joined by the auriculotemporal nerve within the parotid bed?
   a. Maxillary.
   b. Transverse facial.
   c. Posterior auricular.
   d. Superficial temporal.

14. Within the parotid gland, the superficial temporal artery gives rise to which artery?
   a. Maxillary.
   b. External carotid.
   c. Transverse facial.
   d. Posterior auricular.

15. The retromandibular vein is formed as the maxillary vein joins with the
a. external jugular.
b. transverse facial.
c. posterior auricular.
d. superficial temporal.

16. Which vein arises from the confluence of the pterygoid plexus veins?
a. Maxillary.
b. Transverse facial.
c. Posterior auricular.
d. Superficial temporal.

17. Which nerve supplies the deep and superior portions of the parotid gland?
a. Buccal.
b. Supratrochlear.
c. Great auricular.
d. Auriculotemporal.

18. The great auricular nerve innervates which portion of the parotid gland?
a. Deep.
b. Lateral.
c. Superior.
d. Superficial.

19. The inferior salivatory nucleus is the source of which fiber?
a. Preganglionic sympathetic.
b. Postganglionic sympathetic.
c. Preganglionic parasympathetic.
d. Postganglionic parasympathetic.

20. Postganglionic sympathetic fibers follow which artery?
a. Internal carotid.
b. External carotid.
c. Middle meningeal.
d. Ascending pharyngeal.

21. Which artery parallels the parotid duct?
a. External carotid.
b. Transverse facial.
c. Posterior auricular.
d. Superficial temporal.

22. Which branches of the facial nerve create an anastomosing loop near the parotid duct?
a. Temporal of the temporofacial and buccal of the temporofacial.
b. Buccal of the temporofacial and buccal of the cervicofacial.
c. Cervical of the temporofacial and zygomatic of the cervicofacial.
d. Mandibular of the cervicofacial and cervical of the cervicofacial.

23. The anastomosing loop, created by branches of the facial nerve, is located where in relation to the parotid gland?
a. Deep.
b. Medial.
c. Lateral.
d. Superficial.

24. The maximum number of processes the parotid gland may have is
a. 4.
b. 5.
c. 6.
d. 7.

25. Which area of the parotid gland lies adjacent to the lateral pharyngeal space?
a. Deep lobe.
b. Lateral border.
c. Superficial lobe.
d. Anterior border.

26. The parotid duct passes through which muscle before entering the oral cavity?
a. Digastric.
b. Masseter.
c. Stylohyoid.
d. Buccinator.

27. Which direction does the posterior auricular artery travel?
a. Deep.
b. Superior.
c. Superficial.
d. Transverse.

28. The external jugular vein is formed as the posterior auricular vein unites with the
a. transverse facial vein.
b. superficial temporal vein.
c. anterior division of the retromandibular vein.
d. posterior division of the retromandibular vein.

Feedback

1. ANS: a
a. **Correct.** The parotid gland is the largest salivary gland in the body.
b. The thyroid is an endocrine, not salivary, gland.
c. The parotid gland, not sublingual, is the largest salivary gland in the body.
d. The parotid gland, not submandibular, is the largest salivary gland in the body.

REF: p. 186

2. ANS: b
a. The parotid gland overlies most of the masseter, not buccal muscle.
b. **Correct.** The parotid gland overlies the masseter muscle.
c. The parotid gland overlies most of the masseter, not levator anguli oris, muscle.
d. The parotid gland overlies most of the masseter, not levator labii superioris, muscle.

REF: p. 186

3. ANS: d
a. The parotid gland has a capsule made of deep cervical, not visceral, fascia.
b. The parotid gland has a capsule made of deep cervical, not parietal, fascia.
c. The parotid gland has a capsule made of deep cervical, not superficial, fascia.
d. **Correct.** The parotid gland has a capsule made of deep cervical fascia.

REF: p. 186

4. ANS: d
a. The ramus of the mandible forms the anterior, not medial, border of the parotid bed.
b. The ramus of the mandible forms the anterior, not lateral, border of the parotid bed.
c. The ramus of the mandible forms the anterior, not superior, border of the parotid bed.
d. **Correct.** The ramus of the mandible forms the anterior border of the parotid bed.

REF: p. 187

5. ANS: a
a. **Correct.** The parotid gland is split into deep and superficial lobes.
b. The parotid gland is split into deep and superficial lobes, and does not include a lateral lobe.
c. The parotid gland is split into deep and superficial lobes, and does not include an anterior lobe.
d. The parotid gland is split into deep and superficial lobes, and does not include a transverse lobe.

REF: p. 186

6. ANS: a
a. **Correct.** The parotid gland produces serous secretions.
b. The parotid gland produces serous, not mucous, secretions.
c. The parotid gland produces serous, not sebaceous, secretions.
d. The parotid gland produces only serous, not both serous and mucous, secretions.

REF: p. 186

7. ANS: d
a. The parotid gland is shaped like a pyramid, not a ball.
b. The parotid gland is shaped like a pyramid, not a tube.
c. The parotid gland is shaped like a pyramid, not a cube.
d. **Correct.** The parotid gland is shaped like a pyramid.

REF: p. 186

8. ANS: d

a. The facial nerve passes between the posterior belly of the digastric muscle and the stylohyoid muscle, not the masseter muscle, to enter the parotid fossa.
b. The facial nerve passes between the posterior belly of the digastric muscle and the stylohyoid muscle, not the buccinator muscle, to enter the parotid fossa.
c The facial nerve passes between the posterior belly of the digastric muscle and the stylohyoid muscle, not the omohyoid muscle, to enter the parotid fossa.
d. **Correct.** The facial nerve passes between the posterior belly of the digastric muscle and the stylohyoid muscle to enter the parotid fossa.

REF: p. 186

9. ANS: b

a. The buccal is a branch of the temporofacial and cervicofacial trunks that arises in the parotid gland.
b. **Correct.** The maxillary is not a branch of the temporofacial and cervicofacial trunks that arises in the parotid gland.
c. The temporal is a branch of the temporofacial and cervicofacial trunks that arises in the parotid gland.
d. The mandibular is a branch of the temporofacial and cervicofacial trunks that arises in the parotid gland.

REF: p. 188

10. ANS: a

a. **Correct.** The parotid duct is also known as Stensen's duct.
b. The parotid duct is also known as Stensen's duct, not the duct of Rivinus.
c. The parotid duct is also known as Stensen's duct, not Wharton's duct.
d. The parotid duct is also known as Stensen's duct, not Bartholin's duct.

REF: p. 188

11. ANS: a

a. **Correct.** The parotid duct enters the oral cavity adjacent to the maxillary second molar.
b. The parotid duct enters the oral cavity adjacent to the maxillary second molar, not the mandibular molars.
c. The parotid duct enters the oral cavity adjacent to the maxillary second molar, not the floor of the mouth.
d. The parotid duct enters the oral cavity adjacent to the maxillary second molar, not the maxillary premolars.

REF: p. 188

12. ANS: d

a. The external carotid artery, not the facial artery, supplies the parotid bed.
b. The external carotid artery, not the subclavian artery, supplies the parotid bed.
c. The external carotid artery, not the internal carotid artery, supplies the parotid bed.
d. **Correct.** The external carotid artery and branches from it supply the parotid bed.

REF: p. 190

13. ANS: d

a. The auriculotemporal nerve joins the superficial temporal artery, not the maxillary artery, within the parotid bed.
b. The auriculotemporal nerve joins the superficial temporal artery, not the transverse facial artery, within the parotid bed.
c. The auriculotemporal nerve joins the superficial temporal artery, not the posterior auricular artery, within the parotid bed.
d. **Correct.** The auriculotemporal nerve joins the superficial temporal artery within the parotid bed.

REF: p. 190

14. ANS: c

a. The superficial temporal artery gives rise to the transverse facial artery, not the maxillary artery, within the parotid gland.
b. The superficial temporal artery gives rise to the transverse facial artery, not the external carotid artery, within the parotid gland.
c. **Correct.** The superficial temporal artery gives rise to the transverse facial artery within the parotid gland.
d. The superficial temporal artery gives rise to the transverse facial artery, not the posterior auricular artery, within the parotid gland.

REF: p. 190

15. ANS: d

a. The maxillary vein joins with the superficial temporal vein, not the external jugular vein, to form the retromandibular vein.
b. The maxillary vein joins with the superficial temporal vein, not the transverse facial vein, to form the retromandibular vein.
c. The maxillary vein joins with the superficial temporal vein, not the posterior auricular vein, to form the retromandibular vein.
d. **Correct.** The maxillary and superficial temporal veins unite to form the retromandibular vein.

REF: p. 191

16. ANS: a

a. **Correct.** The maxillary vein arises from the joining of the pterygoid plexus veins.
b. The maxillary vein, not the transverse facial vein, arises from the joining of the pterygoid plexus veins.
c. The maxillary vein, not the posterior auricular vein, arises from the joining of the pterygoid plexus veins.
d. The maxillary vein, not the superficial temporal vein, arises from the joining of the pterygoid plexus veins.

REF: p. 191

17. ANS: d

a. The auriculotemporal nerve, not the buccal nerve, supplies the deep and superior portions of the parotid gland.
b. The auriculotemporal nerve, not the supratrochlear nerve, supplies the deep and superior portions of the parotid gland.
c. The auriculotemporal nerve, not the great auricular nerve, supplies the deep and superior portions of the parotid gland.
d. **Correct.** The auriculotemporal nerve innervates the deep and superior portions of the parotid gland.

REF: p. 192

18. ANS: d

a. The superficial, not deep, portion of the parotid gland is supplied by the great auricular nerve.
b. The superficial, not lateral, portion of the parotid gland is supplied by the great auricular nerve.
c. The superficial, not superior, portion of the parotid gland is supplied by the great auricular nerve.
d. **Correct.** The superficial and the inferior portions of the parotid gland are supplied by the great auricular nerve.

REF: p. 192

19. ANS: c

a. The inferior salivatory nucleus is the source of preganglionic parasympathetic fibers, not preganglionic sympathetic fibers.
b. The inferior salivatory nucleus is the source of preganglionic parasympathetic fibers, not postganglionic sympathetic fibers.
c. **Correct.** The inferior salivatory nucleus is the source of preganglionic parasympathetic fibers.
d. The inferior salivatory nucleus is the source of preganglionic parasympathetic fibers, not postganglionic parasympathetic fibers.

REF: p. 194

20. ANS: b

a. The postganglionic sympathetic fibers follow the external carotid artery, not the internal carotid artery.
b. **Correct.** The postganglionic sympathetic fibers follow the external carotid artery and its branches.
c. The postganglionic sympathetic fibers follow the external carotid artery, not the middle meningeal artery.
d. The postganglionic sympathetic fibers follow the external carotid artery, not the ascending pharyngeal artery.

REF: p. 194

21. ANS: b

a. The transverse facial artery, not external carotid, parallels the parotid duct.
b. **Correct.** The transverse facial artery parallels the parotid duct.
c. The transverse facial artery, not posterior auricular, parallels the parotid duct.
d. The transverse facial artery, not superficial temporal, parallels the parotid duct.

REF: p. 186

22. ANS: b

a. The buccal of the temporofacial and buccal of the cervicofacial, not the temporal of the temporofacial and buccal of the temporofacial branches, create an anastomosing loop near the parotid duct.
b. **Correct.** The buccal of the temporofacial and buccal of the cervicofacial branches of the facial nerve create an anastomosing loop near the parotid duct.
c. The buccal of the temporofacial and buccal of the cervicofacial, not the buccal of the temporofacial and zygomatic of the cervicofacial branches, create an anastomosing loop near the parotid duct.
d. The buccal of the temporofacial and buccal of the cervicofacial branches, not the mandibular of the cervicofacial and cervical of the cervicofacial, create an anastomosing loop near the parotid duct.

REF: p. 188

23. ANS: d

a. The anastomosing loop created by branches of the facial nerve is located superficial, not deep, to the parotid gland.
b. The anastomosing loop created by branches of the facial nerve is located superficial, not medial, to the parotid gland.
c. The anastomosing loop created by branches of the facial nerve is located superficial, not lateral, to the parotid gland.
d. **Correct.** The anastomosing loop created by branches of the facial nerve is located superficial to the parotid gland.

REF: p. 188

24. ANS: b

a. The parotid gland may have up to 5, not 4, processes.
b. **Correct.** The parotid gland may have up to 5 processes.
c. The parotid gland may have up to 5, not 6, processes.
d. The parotid gland may have up to 5, not 7, processes.

REF: p. 188

25. ANS: a

a. **Correct.** The deep lobe of the parotid gland lies adjacent to the lateral pharyngeal space.
b. The deep lobe of the parotid gland, not the lateral border, lies adjacent to the lateral pharyngeal space.
c. The deep lobe, not superficial lobe, of the parotid gland lies adjacent to the lateral pharyngeal space.
d. The deep lobe of the parotid gland, not the anterior border, lies adjacent to the lateral pharyngeal space.

REF: p. 188

26. ANS: d

a. The parotid duct passes through the buccinator, not digastric, muscle before entering the oral cavity.
b. The parotid duct passes across, not through, the masseter muscle before entering the oral cavity.
c. The parotid duct passes through the buccinator, not stylohyoid, muscle before entering the oral cavity.
d. **Correct.** The parotid duct passes through the buccinator muscle before entering the oral cavity.

REF: p. 188

27. ANS: b

a. The posterior auricular artery travels in a superior, not deep, direction.
b. **Correct.** The posterior auricular artery travels in a superior direction.
c. The posterior auricular artery travels in a superior, not superficial, direction.
d. The posterior auricular artery travels in a superior, not transverse, direction.

REF: p. 190

28. ANS: d

a. The external jugular vein is formed as the posterior auricular vein unites with the posterior division of the retromandibular vein, not the transverse facial vein.
b. The external jugular vein is formed as the posterior auricular vein unites with the posterior division of the retromandibular vein, not the superficial temporal vein.
c. The external jugular vein is formed as the posterior auricular vein unites with the posterior division of the retromandibular vein, not the anterior division of the retromandibular vein.
d. **Correct.** The external jugular vein is formed as the posterior auricular vein and the posterior division of the retromandibular vein unite.

REF: p. 191

CHAPTER 7

Temporal and Infratemporal Fossae

Multiple Choice

1. The zygomatic arch forms which border of the temporal fossa?
   a. Inferior.
   b. Superior.
   c. Anterior.
   d. Posterior.

2. Which structure is NOT part of the floor of the temporal fossa?
   a. Frontal bone.
   b. Parietal bone.
   c. Greater wing of the sphenoid.
   d. Frontal process of the zygoma.

3. Which artery gives rise to the middle temporal artery?
   a. Maxillary.
   b. Transverse facial.
   c. Superficial temporal.
   d. Anterior deep temporal.

4. In which location does the superficial temporal artery exit the parotid gland?
   a. Deep in the temporalis fascia.
   b. Within the temporalis muscle.
   c. Posterior to the external auditory meatus.
   d. Posterior to the temporomandibular joint.

5. Which artery supplies the temporalis muscle?
   a. Maxillary.
   b. Middle temporal.
   c. Superficial temporal.
   d. Anterior deep temporal.

6. Which structure forms more than one border of the temporal fossa?
   a. Zygomatic arch.
   b. Frontal process of the zygoma.
   c. Superior temporal line of the skull.
   d. Zygomatic process of the frontal bone.

7. Which vein does NOT communicate with the superficial temporal vein at the venous plexus along the scalp?
   a. Occipital.
   b. Supraorbital.
   c. Retromandibular.
   d. Posterior auricular.

8. Which vein joins the superficial temporal vein within the parotid gland?
   a. Transverse facial.
   b. Middle temporal.
   c. Retromandibular.
   d. Anterior deep temporal.

9. Which vein arises from deep within the temporalis muscle?
   a. Maxillary.
   b. Transverse facial.
   c. Middle temporal.
   d. Superficial temporal.

10. Which vein is formed by a convergence of the pterygoid plexus veins?
   a. Maxillary.
   b. Retromandibular.
   c. Superficial temporal.
   d. Anterior deep temporal.

11. The mandibular division of the trigeminal nerve passes through which opening in the skull to enter the infratemporal fossa?
   a. Foramen ovale.
   b. Foramen spinosum.
   c. Foramen rotundum.
   d. Stylomastoid foramen.

12. Which is NOT a branch of the mandibular division of the trigeminal nerve?
   a. Meningeal.
   b. Tensor tympani.
   c. Medial pterygoid.
   d. Zygomaticotemporal.

13. Which nerve innervates the corrugator supercilii muscle?
   a. Auriculotemporal.
   b. Anterior deep temporal.
   c. Posterior deep temporal.
   d. Temporal branches of the facial.

14. The facial nerve passes through which opening in the skull?
   a. Foramen ovale.
   b. Jugular foramen.
   c. Foramen spinosum.
   d. Stylomastoid foramen.

15. A portion of the maxilla forms which border of the infratemporal fossa?
a. Lateral.
b. Anterior.
c. Superior.
d. Posterior.

16. The styloid process helps to form which border of the infratemporal fossa?
a. Medial.
b. Inferior.
c. Superior.
d. Posterior.

17. Which muscle is NOT found within the infratemporal fossa?
a. Masseter.
b. Temporalis.
c. Medial pterygoid.
d. Lateral pterygoid.

18. Which artery arises from within the parotid gland?
a. Maxillary.
b. Anterior tympanic.
c. Accessory meningeal.
d. Posterior superior alveolar.

19. Which is NOT a division of the maxillary artery as it travels through the infratemporal fossa?
a. Temporal part.
b. Pterygoid part.
c. Mandibular part.
d. Pterygopalatine part.

20. Which is NOT a branch of the 1st part (mandibular part) of the maxillary artery?
a. Deep auricular.
b. Middle meningeal.
c. Anterior tympanic.
d. Anterior deep temporal.

21. The pterygoid plexus parallels which part of the maxillary artery?
a. Alveolar.
b. Tympanic.
c. Mandibular.
d. Pterygopalatine.

22. Which does NOT communicate with the pterygoid plexus?
a. Facial vein.
b. Angular vein.
c. Cavernous sinus.
d. Pharyngeal venous plexus.

23. The mandibular division of the trigeminal nerve has
   a. only motor functions.
   b. only sensory functions.
   c. both motor and sensory functions.
   d. neither motor nor sensory functions.

24. The mandibular division of the trigeminal nerve enters the infratemporal fossa by passing through which opening in the skull?
   a. Foramen ovale.
   b. Foramen spinosum.
   c. Mandibular foramen.
   d. Pterygomaxillary fissure.

25. Which branch of the anterior division of the mandibular nerve is sensory in function?
   a. Buccal.
   b. Masseteric.
   c. Medial pterygoid.
   d. Anterior deep temporal.

26. The chorda tympani is a branch of which nerve?
   a. Facial.
   b. Maxillary.
   c. Mandibular.
   d. Ophthalmic.

27. The otic ganglion innervates which structure?
   a. Tongue.
   b. Parotid gland.
   c. Maxillary molars.
   d. Temporomandibular joint.

28. The posterior superior alveolar nerve passes through which opening to enter the infratemporal fossa?
   a. Foramen ovale.
   b. Mandibular foramen.
   c. Petrotympanic fissure.
   d. Pterygomaxillary fissure.

Feedback

1. ANS: a
   a. **Correct.** The zygomatic arch forms the inferior border of the temporal fossa.
   b. The zygomatic arch forms the inferior border, not superior, of the temporal fossa.
   c. The zygomatic arch forms the inferior border, not anterior, of the temporal fossa.
   d. The zygomatic arch forms the inferior border, not posterior, of the temporal fossa.

   REF: p. 205

2. ANS: d
  a. The frontal bone is a structure of the floor of the temporal fossa.
  b. The parietal bone is a structure of the floor of the temporal fossa.
  c. The greater wing of the sphenoid is a structure of the floor of the temporal fossa.
  d. **Correct.** The frontal process of the zygoma forms part of the anterior border, not floor, of the temporal fossa.

REF: p. 205

3. ANS: c
  a. The superficial temporal artery, not maxillary artery, gives rise to the middle temporal artery.
  b. The superficial temporal artery, not transverse facial artery, gives rise to the middle temporal artery.
  c. **Correct.** The superficial temporal artery gives rise to the middle temporal artery.
  d. The superficial temporal artery, not anterior deep temporal artery, gives rise to the middle temporal artery.

REF: p. 206

4. ANS: d
  a. The superficial temporal artery exits the parotid gland immediately posterior to the temporomandibular joint, not deep in the temporalis fascia.
  b. The superficial temporal artery exits the parotid gland immediately posterior to the temporomandibular joint, not within the temporalis muscle.
  c. The superficial temporal artery exits the parotid gland immediately posterior to the temporomandibular joint, not the external auditory meatus.
  d. **Correct.** The superficial temporal artery exits the parotid gland immediately posterior to the temporomandibular joint.

REF: p. 206

5. ANS: d
  a. The temporalis muscle is supplied in part by the anterior deep temporal artery, not the maxillary artery.
  b. The temporalis muscle is supplied in part by the anterior deep temporal artery, not the middle temporal artery.
  c. The temporalis muscle is supplied in part by the anterior deep temporal artery, not the superficial temporal artery.
  d. **Correct.** The temporalis muscle is supplied by the anterior deep temporal artery, as well as the posterior deep temporal artery.

REF: p. 206

6. ANS: c

a. The zygomatic arch forms only the inferior border of the temporal fossa.
b. The frontal process of the zygoma forms only the anterior border of the temporal fossa.
c. **Correct.** The superior temporal line of the skull forms both the superior and posterior border of the temporal fossa.
d. The zygomatic process of the frontal bone forms only the anterior border of the temporal fossa.

REF: p. 205

7. ANS: c

a. The occipital vein is one of the veins that communicates with the superficial temporal vein at the venous plexus along the scalp.
b. The supraorbital vein is one of the veins that communicates with the superficial temporal vein at the venous plexus along the scalp.
c. **Correct.** The superficial temporal vein does not communicate with the retromandibular vein at the venous plexus, but rather forms the retromandibular vein after joining the maxillary vein.
d. The posterior auricular vein is one of the veins that communicates with the superficial temporal vein at the venous plexus along the scalp.

REF: p. 207

8. ANS: a

a. **Correct.** The transverse facial vein joins the superficial temporal vein within the parotid gland.
b. The transverse facial vein, not the middle temporal vein, joins the superficial temporal vein within the parotid gland.
c. The transverse facial vein, not the retromandibular vein, joins the superficial temporal vein within the parotid gland.
d. The transverse facial vein, not the anterior deep temporal vein, joins the superficial temporal vein within the parotid gland.

REF: pp. 207, 230

9. ANS: c

a. The maxillary vein arises from a convergence of the veins of the pterygoid plexus, not from within the temporalis muscle.
b. The middle temporal vein, not the transverse facial, arises from deep within the temporalis muscle.
c. **Correct.** Deep within the temporalis muscle is the source of the middle temporal vein.
d. The superficial temporal vein arises at the vertex of the skull, not the temporalis muscle.

REF: pp. 207, 230

10. ANS: a
  a. **Correct.** The confluence of pterygoid plexus veins is the source of the maxillary vein.
  b. The retromandibular vein is not formed by the pterygoid plexus veins, but by the convergence of the maxillary and superficial temporal veins.
  c. The superficial vein is not formed by the pterygoid plexus veins converging; it arises near the vertex of the skull.
  d. The maxillary vein, not the anterior deep temporal vein, is formed by the pterygoid plexus veins converging.

REF: p. 207

11. ANS: a
  a. **Correct.** To enter the infratemporal fossa, the mandibular division of the trigeminal nerve passes through the foramen ovale.
  b. To enter the infratemporal fossa, the mandibular division of the trigeminal nerve passes through the foramen ovale, not the foramen spinosum.
  c. To enter the infratemporal fossa, the mandibular division of the trigeminal nerve passes through the foramen ovale, not the foramen rotundum.
  d. To enter the infratemporal fossa, the mandibular division of the trigeminal nerve passes through the foramen ovale, not the stylomastoid foramen.

REF: p. 208

12. ANS: d
  a. The meningeal nerve is a branch of the mandibular division of the trigeminal nerve.
  b. The tensor tympani nerve is a branch of the mandibular division of the trigeminal nerve.
  c. The medial pterygoid nerve is a branch of the mandibular division of the trigeminal nerve.
  d. **Correct.** The zygomaticotemporal nerve is a branch of the maxillary division of the trigeminal nerve, not the mandibular.

REF: p. 208

13. ANS: d
  a. The temporal branches of the facial nerve, not the auriculotemporal nerve, innervate the corrugator supercilii muscle.
  b. The temporal branches of the facial nerve, not the anterior deep temporal nerve, innervate the corrugator supercilii muscle.
  c. The temporal branches of the facial nerve, not the posterior deep temporal nerve, innervate the corrugator supercilii muscle.
  d. **Correct.** The temporal branches of the facial nerve are motor branches that innervate the corrugator supercilii muscle, as well as other muscles in the area.

REF: p. 208

14. ANS: d
a. The facial nerve passes through the stylomastoid foramen, not the foramen ovale.
b. The facial nerve passes through the stylomastoid foramen, not the jugular foramen.
c. The facial nerve passes through the stylomastoid foramen, not the foramen spinosum.
d. **Correct.** The main trunk of the facial nerve passes through the stylomastoid foramen.

REF: p. 208

15. ANS: b
a. The posterior part of the maxilla creates the anterior, not lateral, border of the infratemporal fossa.
b. **Correct.** The anterior border of the infratemporal fossa is created by the posterior portion of the maxilla.
c. The posterior part of the maxilla creates the anterior, not superior, border of the infratemporal fossa.
d. The posterior part of the maxilla creates the anterior, not posterior, border of the infratemporal fossa.

REF: p. 210

16. ANS: d
a. The styloid process helps to form the posterior, not medial, border of the infratemporal fossa.
b. The styloid process helps to form the posterior, not inferior, border of the infratemporal fossa.
c. The styloid process helps to form the posterior, not superior, border of the infratemporal fossa.
d. **Correct.** The posterior border of the infratemporal fossa is created in part by the styloid process.

REF: p. 210

17. ANS: a
a. **Correct.** The masseter muscle is not located within the infratemporal fossa.
b. The temporalis muscle is one of the muscles found within the infratemporal fossa.
c. The medial pterygoid muscle is one of the muscles found within the infratemporal fossa.
d. The lateral pterygoid muscle is one of the muscles found within the infratemporal fossa.

REF: p. 210

18. ANS: a
a. **Correct.** The maxillary artery arises from within the parotid gland.
b. The tympanic artery is a branch of the mandibular part of the maxillary artery and does not arise in the parotid gland.
c. The accessory meningeal artery arises from the maxillary artery, not within the parotid gland.
d. The posterior superior alveolar arises in the infratemporal fossa, not the parotid gland.

REF: p. 213

19. ANS: a

a. **Correct.** The maxillary artery does not form a division known as the temporal part.
b. The 2nd division of the maxillary artery is also known as the pterygoid part.
c. The 1st division of the maxillary artery is known as the mandibular part.
d. The 3rd division of the maxillary artery is known as the pterygopalatine part.

REF: p. 212

20. ANS: d

a. The deep auricular artery is a branch of the 1st part of the maxillary artery.
b. The middle meningeal artery is a branch of the 1st part of the maxillary artery.
c. The anterior tympanic artery is a branch of the 1st part of the maxillary artery.
d. **Correct.** The anterior deep temporal artery is a branch of the 2nd part (pterygoid part), not the 1st part, of the maxillary artery.

REF: p. 212

21. ANS: d

a. The inferior alveolar artery is one of the arteries in the 1st part (mandibular part) of the maxillary artery, which is not paralleled by the pterygoid plexus.
b. The anterior tympanic artery is one of the arteries in the 1st part (mandibular part) of the maxillary artery, which is not paralleled by the pterygoid plexus.
c. The mandibular part (1st part) of the maxillary artery is not paralleled by the pterygoid plexus.
d. **Correct.** The pterygopalatine part (3rd part) and the pterygoid part (2nd part) of the maxillary artery are paralleled by the pterygoid plexus.

REF: p. 215

22. ANS: b

a. The pterygoid plexus communicates with the facial vein via the deep facial vein.
b. **Correct.** The angular vein does not communicate with the pterygoid plexus.
c. The pterygoid plexus communicates with the cavernous sinus via the ophthalmic vein.
d. The pterygoid venous plexus does communicate with the pharyngeal venous plexus.

REF: p. 215

23. ANS: c

a. The mandibular division of the trigeminal nerve has both motor and sensory functions.
b. The mandibular division of the trigeminal nerve has both motor and sensory functions.
c. **Correct.** The mandibular division of the trigeminal nerve has both motor and sensory functions.
d. The mandibular division of the trigeminal nerve has both motor and sensory functions.

REF: p. 216

24. ANS: a

a. **Correct.** The mandibular division of the trigeminal nerve enters the infratemporal fossa by passing through the foramen ovale.
b. The mandibular division of the trigeminal nerve does not pass through the foramen spinosum to enter the infratemporal fossa.
c. The mandibular division of the trigeminal nerve does not pass through the mandibular foramen to enter the infratemporal fossa.
d. The mandibular division of the trigeminal nerve does not pass through the pterygomaxillary fissure to enter the infratemporal fossa.

REF: p. 216

25. ANS: a

a. **Correct.** The buccal nerve is sensory in function.
b. The masseteric nerve is motor in function.
c. The medial pterygoid is motor in function.
d. The anterior deep temporal is motor in function.

REF: p. 216

26. ANS: a

a. **Correct.** The chorda tympani is a branch of the facial nerve.
b. The chorda tympani is a branch of the facial nerve, not maxillary nerve.
c. The chorda tympani is a branch of the facial nerve, not mandibular nerve.
d. The chorda tympani is a branch of the facial nerve, not ophthalmic nerve.

REF: pp. 216, 219, 363

27. ANS: b

a. The tongue is innervated in part by the lingual nerve, not the otic ganglion.
b. **Correct.** The parotid gland is innervated by the otic ganglion for salivation.
c. The maxillary molars are mostly innervated by the posterior superior alveolar nerve, not the otic ganglion.
d. The temporomandibular joint is innervated in part by the masseteric nerve, not the otic ganglion.

REF: p. 219

28. ANS: d

a. The posterior superior alveolar passes through the pterygomaxillary fissure, not the foramen ovale, to enter the infratemporal fossa.
b. The posterior superior alveolar passes through the pterygomaxillary fissure, not the mandibular foramen, to enter the infratemporal fossa.
c. The posterior superior alveolar passes through the pterygomaxillary fissure, not the petrotympanic fissure, to enter the infratemporal fossa.
d. **Correct.** The posterior superior alveolar nerve passes through the pterygomaxillary fissure to enter the infratemporal fossa.

REF: p. 217

CHAPTER 8

Muscles of Mastication

Multiple Choice

1. All muscles of mastication originate in which location?
   a. Skull.
   b. Mandible.
   c. Zygomatic bone.
   d. Temporalis muscle.

2. Which cranial nerve innervates all the muscles of mastication?
   a. Facial.
   b. Maxillary.
   c. Trigeminal.
   d. Ophthalmic.

3. The muscles of mastication all insert on which structure?
   a. Skull.
   b. Mandible.
   c. Zygomatic arch.
   d. Maxillary tuberosity.

4. The muscles of mastication are all derivatives of which pharyngeal arch?
   a. 1st.
   b. 2nd.
   c. 3rd.
   d. 4th.

5. Which surface of the masseter muscle is supplied by the masseteric artery?
   a. Deep.
   b. Inferior.
   c. Superior.
   d. Superficial.

6. Which is NOT a main action of the masseter muscle?
   a. Elevate the mandible.
   b. Retrude the mandible.
   c. Protrude the mandible.
   d. Move the mandible laterally.

7. The superficial head of the masseter muscle is also described as the
   a. deep part.
   b. lower part.
   c. larger part.
   d. smaller part.

8. The temporalis muscle is NOT responsible for which action to the mandible?
   a. Elevation.
   b. Retrusion.
   c. Protrusion.
   d. Lateral excursion.

9. The mandibular ramus is the insertion of each muscle, EXCEPT one. Which is the EXCEPTION?
   a. Temporalis.
   b. Lateral pterygoid.
   c. Deep head of the masseter.
   d. Superficial head of the masseter.

10. Which muscle of mastication keeps the mandible in rest position?
   a. Masseter.
   b. Temporalis.
   c. Lateral pterygoid.
   d. Medial pterygoid.

11. Which muscle depresses the mandible?
   a. Masseter.
   b. Temporalis.
   c. Lateral pterygoid.
   d. Medial pterygoid.

12. The origin of the upper head of the lateral pterygoid muscle is the
   a. maxillary tuberosity.
   b. greater wing of the sphenoid.
   c. lateral surface of the pterygoid plate.
   d. medial surface of the pterygoid plate.

13. The pterygoid fovea is the insertion for which muscle?
   a. Deep head of the medial pterygoid.
   b. Upper head of the lateral pterygoid.
   c. Lower head of the lateral pterygoid.
   d. Superficial head of the medial pterygoid.

14. The zygomatic arch is the origin of which muscle?
   a. Masseter.
   b. Temporalis.
   c. Lateral pterygoid.
   d. Medial pterygoid.

15. Which part of the maxillary artery supplies the muscles of mastication?
a. Pterygoid.
b. Mandibular.
c. Pterygopalatine.
d. Sphenomandibular.

16. Which is NOT a muscle of mastication?
a. Masseter.
b. Buccinator.
c. Temporalis.
d. Medial pterygoid.

17. Which is NOT a branch of the 2nd part (pterygoid part) of the maxillary artery?
a. Masseteric.
b. Pterygoid.
c. Transverse facial.
d. Anterior deep temporal.

18. Which artery of the pterygoid (2nd part of the maxillary artery) has an irregular number of branches?
a. Buccal.
b. Pterygoid.
c. Anterior deep temporal.
d. Posterior deep temporal.

19. The middle temporal artery is a branch of which artery?
a. Pterygoid.
b. Masseteric.
c. Transverse facial.
d. Superficial temporal.

20. The pterygoid plexus receives branches that correspond with the same branches of which artery?
a. Maxillary.
b. External carotid.
c. Superficial temporal.
d. Anterior deep temporal.

21. The tributaries of the pterygoid plexus form which vein?
a. Maxillary.
b. Masseteric.
c. Deep facial.
d. Middle temporal.

22. The middle temporal vein arises from within which muscle?
a. Masseter.
b. Temporalis.
c. Medial pterygoid.
d. Lateral pterygoid.

23. Which vein joins the superficial temporal vein?
   a. Buccal.
   b. Pterygoid.
   c. Transverse facial.
   d. Anterior deep temporal.

24. Which vein does NOT join the pterygoid plexus of veins?
   a. Masseteric.
   b. Middle temporal.
   c. Anterior deep temporal.
   d. Posterior deep temporal.

25. Which division of the trigeminal nerve innervates the muscles of mastication?
   a. Pterygoid.
   b. Maxillary.
   c. Mandibular.
   d. Ophthalmic.

26. The temporalis muscle is innervated by which nerve?
   a. Masseteric.
   b. Medial pterygoid.
   c. Lateral pterygoid.
   d. Anterior deep temporal.

27. Which nerve may occasionally arise as a branch from the buccal nerve?
   a. Masseteric.
   b. Medial pterygoid.
   c. Lateral pterygoid.
   d. Posterior deep temporal.

28. Which nerve provides a branch to the temporomandibular joint?
   a. Masseteric.
   b. Lateral pterygoid.
   c. Anterior deep temporal.
   d. Posterior deep temporal.

Feedback

1. ANS: a
   a. **Correct.** The skull is the origin of all the muscles of mastication.
   b. The muscles of mastication originate on the skull, not the mandible.
   c. The muscles of mastication originate on the skull, not the zygomatic bone.
   d. The muscles of mastication originate on the skull, not the temporalis muscle.

   REF: p. 224

2. ANS: c

a. The muscles of mastication are all innervated by the mandibular division of the trigeminal nerve, not the maxillary division.
b. The muscles of mastication are all innervated by the mandibular division of the trigeminal nerve, not the facial nerve.
c. **Correct.** The muscles of mastication are all innervated by the mandibular division of the trigeminal nerve.
d. The muscles of mastication are all innervated by the mandibular division of the trigeminal nerve, not the ophthalmic division.

REF: p. 224

3. ANS: b

a. The muscles of mastication all insert on the mandible, not the skull.
b. **Correct.** The muscles of mastication all insert on the mandible.
c. The muscles of mastication all insert on the mandible, not the zygomatic arch.
d. The muscles of mastication all insert on the mandible, not the maxillary tuberosity.

REF: p. 224

4. ANS: a

a. **Correct.** The muscles of mastication are all derivatives of the 1st pharyngeal arch.
b. The muscles of mastication are all derivatives of the 1st, not 2nd, pharyngeal arch.
c. The muscles of mastication are all derivatives of the 1st, not the 3rd, pharyngeal arch.
d. The muscles of mastication are all derivatives of the 1st, not the 4th, pharyngeal arch.

REF: p. 224

5. ANS: a

a. **Correct.** The deep surface of the masseter muscle is supplied by the masseteric artery.
b. The deep surface, not the inferior surface, of the masseter muscle is supplied by the masseteric artery.
c. The deep surface, not the superior surface, of the masseter muscle is supplied by the masseteric artery.
d. The deep surface, not the superficial surface, of the masseter muscle is supplied by the masseteric artery.

REF: p. 228

6. ANS: b

a. A main action of the masseter muscle is to elevate the mandible.
b. **Correct.** Retruding the mandible is not a main action of the masseter muscle.
c. A main action of the masseter muscle is to protrude the mandible.
d. A main action of the masseter muscle is lateral excursion of the mandible.

REF: p. 225

7. ANS: c
  a. The superficial head of the masseter muscle is also described as the larger part, not deep part.
  b. The superficial head of the masseter muscle is also described as the larger part, not lower part.
  c. **Correct.** The superficial head of the masseter muscle is also described as the larger part.
  d. The superficial head of the masseter muscle is also described as the larger part, not smaller part.

REF: p. 225

8. ANS: c
  a. Elevating the mandible is one of the main actions of the temporalis muscle.
  b. Retruding the mandible is one of the main actions of the temporalis muscle.
  c. **Correct.** Protruding the mandible is not a main action of the temporalis muscle.
  d. Lateral excursion of the mandible is one of the main actions of the temporalis muscle.

REF: p. 225

9. ANS: b
  a. The temporalis muscle inserts on the anterior border of the mandibular ramus.
  b. **Correct.** The lateral pterygoid muscle does not insert on the mandibular ramus.
  c. The deep head of the masseter muscle inserts on the superolateral mandibular ramus.
  d. The superficial head of the masseter muscle inserts on the inferior and lateral parts of the mandibular ramus.

REF: p. 225

10. ANS: b
  a. The temporalis muscle, not the masseter, keeps the mandible in rest position.
  b. **Correct.** The temporalis muscle keeps the mandible in rest position.
  c. The temporalis muscle, not the lateral pterygoid, keeps the mandible in rest position.
  d. The temporalis muscle, not the medial pterygoid, keeps the mandible in rest position.

REF: p. 225

11. ANS: c
  a. The lateral pterygoid muscle, not the masseter, depresses the mandible.
  b. The lateral pterygoid muscle, not the temporalis, depresses the mandible.
  c. **Correct.** One of the main actions of the lateral pterygoid muscle is to depress the mandible.
  d. The lateral pterygoid muscle, not the medial pterygoid, depresses the mandible.

REF: p. 225

12. ANS: b

a. The greater wing of the sphenoid is the origin of the upper head of the lateral pterygoid muscle. The maxillary tuberosity is an origin of the superficial head of the medial pterygoid muscle.
b. **Correct.** The greater wing of the sphenoid is the origin of the upper head of the lateral pterygoid muscle.
c. The greater wing of the sphenoid is the origin of the upper head of the lateral pterygoid muscle. The lateral surface of the pterygoid plate is the origin of the lower head of the lateral pterygoid muscle.
d. The greater wing of the sphenoid is the origin of the upper head of the lateral pterygoid muscle. The medial surface of the pterygoid plate is the origin of the deep head of the medial pterygoid muscle.

REF: p. 225

13. ANS: c

a. The pterygoid fovea is the insertion for the lower head of the lateral pterygoid muscle, not the deep head of the medial pterygoid.
b. The pterygoid fovea is the insertion for the lower head, not upper head, of the lateral pterygoid muscle.
c. **Correct.** The pterygoid fovea is the insertion for the lower head of the lateral pterygoid muscle.
d. The pterygoid fovea is the insertion for the lower head of the lateral pterygoid muscle, not the superficial head of the medial pterygoid.

REF: p. 225

14. ANS: a

a. **Correct.** The inferior border of the zygomatic arch is the origin of the masseter muscle, with the superficial head originating on the anterior ⅔ of the arch and the deep head originating on the posterior ⅓ of the arch.
b. The zygomatic arch is the origin of the masseter muscle, not the temporalis muscle.
c. The zygomatic arch is the origin of the masseter muscle, not the lateral pterygoid muscle.
d. The zygomatic arch is the origin of the masseter muscle, not the medial pterygoid muscle.

REF: p. 225

15. ANS: a

a. **Correct.** The pterygoid or 2nd part of the maxillary artery supplies the muscles of mastication.
b. The pterygoid or 2nd part, not the mandibular or 1st part, of the maxillary artery supplies the muscles of mastication.
c. The pterygoid or 2nd part, not the pterygopalatine or 3rd part, of the maxillary artery supplies the muscles of mastication.
d. The muscles of mastication are supplied by the pterygoid part of the maxillary artery. There is no part of the maxillary artery called the sphenomandibular part.

REF: p. 228

16. ANS: b

a. The masseter is a muscle of mastication.
b. **Correct.** The buccinator muscle is NOT a muscle of mastication.
c. The temporalis muscle is a muscle of mastication.
d. The medial pterygoid is a muscle of mastication.

REF: p. 228

17. ANS: c

a. The masseteric artery is a branch of the 2nd part (pterygoid part) of the maxillary artery.
b. The pterygoid artery is a branch of the 2nd part (pterygoid part) of the maxillary artery.
c. **Correct.** The transverse facial artery is a terminal branch of the external carotid artery, not a branch of the 2nd part (ptertygoid part) of the maxillary artery.
d. The anterior deep temporal artery is a branch of the 2nd part (pterygoid part) of the maxillary artery.

REF: p. 228

18. ANS: b

a. The buccal artery has only one branch which supplies the buccinator muscle.
b. **Correct.** The pterygoid artery has an irregular number of branches that supply the medial and lateral pterygoid muscles.
c. The anterior deep temporal artery has only one branch which supplies the temporalis muscle.
d. The posterior deep temporal artery has only one branch which supplies the temporalis muscle.

REF: p. 228

19. ANS: d

a. The middle temporal artery is a branch of the superficial temporal artery, not the pterygoid artery.
b. The middle temporal artery is a branch of the superficial temporal artery, not the masseteric artery.
c. The middle temporal artery is a branch of the superficial temporal artery, not the transverse facial artery.
d. **Correct.** The middle temporal artery is a branch of the superficial temporal artery.

REF: p. 228

20. ANS: a

a. **Correct.** The branches of the maxillary artery are the same as those the pterygoid plexus receives.
b. The pterygoid plexus does not correspond with branches of the external carotid artery.
c. The pterygoid plexus does not correspond with branches of the superficial temporal artery.
d. The pterygoid plexus does not correspond with branches of the anterior deep temporal artery.

REF: p. 230

21. ANS: a
  a. **Correct.** The tributaries of the pterygoid plexus form the maxillary vein.
  b. The tributaries of the pterygoid plexus form the maxillary, not masseteric, vein.
  c. The tributaries of the pterygoid plexus form the maxillary, not deep facial, vein.
  d. The tributaries of the pterygoid plexus form the maxillary, not middle temporal, vein.

  REF: p. 230

22. ANS: b
  a. The middle temporal vein arises from within the temporalis muscle, not the masseter.
  b. **Correct.** The middle temporal vein arises from within the temporalis muscle.
  c. The middle temporal vein arises from within the temporalis muscle, not the medial pterygoid.
  d. The middle temporal vein arises from within the temporalis muscle, not the lateral pterygoid.

  REF: p. 230

23. ANS: c
  a. The transverse facial vein, not the buccal vein, joins the superficial temporal vein.
  b. The transverse facial vein, not the pterygoid vein, joins the superficial temporal vein.
  c. **Correct.** The transverse facial vein joins the superficial temporal vein after entering the parotid gland.
  d. The transverse facial vein, not the anterior deep temporal vein, joins the superficial temporal vein.

  REF: p. 230

24. ANS: b
  a. The masseteric vein does join the pterygoid plexus of veins.
  b. **Correct.** The middle temporal vein joins the superficial temporal vein, not the pterygoid plexus of veins.
  c. The anterior deep temporal vein does join the pterygoid plexus of veins.
  d. The posterior deep temporal vein does join the pterygoid plexus of veins.

  REF: p. 230

25. ANS: c
  a. The branches of the mandibular division of the trigeminal nerve innervate the muscles of mastication. There is no pterygoid branch of the trigeminal nerve.
  b. The branches of the mandibular, not maxillary, division of the trigeminal nerve innervate the muscles of mastication.
  c. **Correct.** The motor branches of the mandibular division of the trigeminal nerve innervate the muscles of mastication.
  d. The branches of the mandibular, not ophthalmic, division of the trigeminal nerve innervate the muscles of mastication.

  REF: p. 224

26. ANS: d

a. The temporalis muscle is innervated by the anterior and posterior deep temporal nerves, not the masseteric nerve.
b. The temporalis muscle is innervated by the anterior and posterior deep temporal nerves, not the medial pterygoid nerve.
c. The temporalis muscle is innervated by the anterior and posterior deep temporal nerves, not the lateral pterygoid nerve.
d. **Correct.** The anterior and posterior deep temporal nerves innervate the temporalis muscle.

REF: p. 231

27. ANS: c

a. The masseteric nerve arises from the anterior part of the mandibular division of the trigeminal nerve, not the buccal nerve.
b. The medial pterygoid nerve arises from the mandibular division of the trigeminal nerve, not the buccal nerve.
c. **Correct.** The lateral pterygoid nerve usually arises from the anterior part of the mandibular division of the trigeminal nerve, but may occasionally arise from the buccal nerve.
d. The posterior deep temporal nerve arises from the anterior part of the mandibular division of the trigeminal nerve, not the buccal nerve.

REF: p. 231

28. ANS: a

a. **Correct.** The masseteric nerve provides a branch to the temporomandibular joint.
b. The masseteric nerve, not lateral pterygoid nerve, provides a branch to the temporomandibular joint.
c. The masseteric nerve, not anterior deep temporal nerve, provides a branch to the temporomandibular joint.
d. The masseteric nerve, not posterior deep temporal nerve, provides a branch to the temporomandibular joint.

REF: p. 231

CHAPTER 9

Temporomandibular Joint

Multiple Choice

1. The squamous portion of the temporal bone articulates with which structure, forming the temporomandibular joint (TMJ)?
a. Mandibular notch.
b. Ramus of the mandible.
c. Condyle of the mandible.
d. Coronoid of the mandible.

2. Which is NOT a main load-bearing area of the TMJ?
a. Condyle.
b. Articular disc.
c. Lateral aspect of the squamous portion of the temporal bone.
d. Medial aspect of the squamous portion of the temporal bone.

3. Which structure is a bony prominence located at the base of the zygomatic process?
a. Glenoid fossa.
b. Tympanic plate.
c. Articular tubercle.
d. Articular eminence.

4. Which structure supplies attachment sites along the posterior portion of the glenoid fossa?
a. Tympanic plate.
b. Postglenoid tubercle.
c. Articular tubercle.
d. Articular eminence.

5. The surface of the squamous portion of the temporal bone is composed of which material?
a. Synovial fluid.
b. Hyaline cartilage.
c. Fibrous connective tissue.
d. Collagenous connective tissue.

6. The articular disc is located between which structure and the squamous portion of the temporal bone?
a. Tympanic plate.
b. Articular eminence.
c. Mandibular condyle.
d. Postglenoid tubercle.

7. Which area of the articular disc is avascular and aneural?
   a. Lateral.
   b. Central.
   c. Anterior.
   d. Posterior.

8. Which is NOT a division of the bands of the articular disc?
   a. Superior.
   b. Anterior.
   c. Posterior.
   d. Intermediate.

9. Which portion of the articular disc is the main load-bearing area?
   a. Medial.
   b. Lateral.
   c. Anterior.
   d. Posterior.

10. Which attachment is adjacent to the bilaminar zone?
   a. Medial.
   b. Lateral.
   c. Anterior.
   d. Posterior.

11. Which component of the TMJ attaches the posterior portion of the disc to the condyle?
   a. Inferior lamina.
   b. Retrodiscal pad.
   c. Medial attachment.
   d. Anterior attachment.

12. Which is NOT a component of the bilaminar zone of the posterior attachment complex of the TMJ?
   a. Inferior lamina.
   b. Tympanic plate.
   c. Superior lamina.
   d. Retrodiscal pad.

13. Which is a compartment of the TMJ?
   a. Lateral.
   b. Inferior.
   c. Anterior.
   d. Posterior.

14. The TMJ is which type of joint?
   a. Fibrous.
   b. Synovial.
   c. Symphysis.
   d. Cartilaginous.

15. Which is the volume of the superior compartment of the TMJ for synovial fluid?
  a. 0.5 mL.
  b. 0.9 mL.
  c. 1.2 mL.
  d. 1.5 mL.

16. The superior compartment of the TMJ provides for which type of movement?
  a. Pivotal.
  b. Rotational.
  c. Translational.
  d. Circumductional.

17. The articular surfaces of both the condyle and the temporal bone are enclosed by which component of the TMJ?
  a. Capsule.
  b. Ligaments.
  c. Articular disc.
  d. Compartments.

18. Which component of the TMJ does NOT have a synovial lining?
  a. Capsule.
  b. Collateral ligaments.
  c. Inferior compartment.
  d. Superior compartment.

19. Ligaments toughen which aspects of the capsule by providing joint stability?
  a. Medial and lateral.
  b. Inferior and anterior.
  c. Superior and inferior.
  d. Anterior and posterior.

20. Which site of attachment of the capsule is located along the retrodiscal pad?
  a. Medial.
  b. Inferior.
  c. Superior.
  d. Posterior.

21. Which ligament of the TMJ limits the anterior protrusion of the mandible?
  a. Medial collateral ligament.
  b. Stylomandibular ligament.
  c. Sphenomandibular ligament.
  d. Temporomandibular ligament.

22. Which artery does NOT supply the TMJ?
  a. Deep auricular.
  b. Posterior auricular.
  c. Anterior tympanic.
  d. Superficial temporal.

23. Which artery passes through the petrotympanic fissure to supply the TMJ?
  a. Deep auricular.
  b. Middle meningeal.
  c. Anterior tympanic.
  d. Superficial temporal.

24. Which artery DOES NOT supply branches to the TMJ?
  a. Deep auricular.
  b. Transverse facial.
  c. Anterior tympanic.
  d. Superficial temporal.

25. Which vein receives branches from the TMJ for venous drainage?
  a. Maxillary.
  b. Deep facial.
  c. Transverse facial.
  d. Posterior auricular.

26. Which vein is formed by the joining of the superficial temporal and maxillary veins?
  a. Common facial.
  b. Retromandibular.
  c. Posterior auricular.
  d. Superficial temporal.

27. The posterior division of the trigeminal nerve that innervates the TMJ is the
  a. masseteric.
  b. mylohyoid.
  c. auriculotemporal.
  d. posterior deep temporal.

28. Which nerve supplies the joint before innervating the temporalis muscle?
  a. Masseteric.
  b. Inferior alveolar.
  c. Auriculotemporal.
  d. Posterior deep temporal.

Feedback

1. ANS: c
  a. The TMJ is formed by the articulation of the squamous portion of the temporal bone and the condyle of the mandible, not the mandibular notch.
  b. The TMJ is formed by the articulation of the squamous portion of the temporal bone and the condyle of the mandible, not the ramus of the mandible.
  c. **Correct.** The TMJ is formed by the articulation of the squamous portion of the temporal bone and the condyle of the mandible.
  d. The TMJ is formed by the articulation of the squamous portion of the temporal bone and the condyle of the mandible, not the coronoid of the mandible.

REF: p. 236

2. ANS: d

a. The condyle is one of the main load-bearing areas of the TMJ, in particular the lateral aspect of the condyle.
b. The articular disc is one of the main load-bearing areas of the TMJ, in particular the lateral aspect of the articular disc.
c. The lateral aspect of the squamous portion of the temporal bone is one of the main load-bearing areas of the TMJ.
d. **Correct.** The medial aspect of the squamous portion of the temporal bone is not one of the main load-bearing areas of the TMJ.

REF: p. 237

3. ANS: d

a. The glenoid fossa is not a bony prominence, but is a depression that articulates with the condyle.
b. The tympanic plate is not a bony prominence, but rather a vertical plate.
c. The articular tubercle is a part of the articular eminence, located on the lateral part.
d. **Correct.** The articular eminence is the bony eminence located on the base of the zygomatic process.

REF: p. 237

4. ANS: b

a. The tympanic plate does not form attachment sites at the posterior aspect of the glenoid fossa.
b. **Correct.** The postglenoid tubercle forms the posterior portion of the glenoid fossa and supplies attachment sites.
c. The articular tubercle lies along the anterior border of the glenoid fossa; it does not form the posterior portion.
d. The articular eminence forms the anterior, not posterior, aspect of the glenoid fossa.

REF: p. 237

5. ANS: c

a. The surface of the squamous portion of the temporal bone is composed of fibrous connective tissue, not synovial fluid.
b. The surface of the squamous portion of the temporal bone is composed of fibrous connective tissue, not hyaline cartilage.
c. **Correct.** The surface of the squamous portion of the temporal bone, as well as the surface of the mandibular condyle, is composed of fibrous connective tissue.
d. The surface of the squamous portion of the temporal bone is composed of fibrous connective tissue, not collagenous connective tissue.

REF: p. 237

6. ANS: c

a. The tympanic plate is located on the squamous portion of the temporal bone, and is not separated from it by the articular disc.
b. The articular eminence is located on the squamous portion of the temporal bone, and is not separated from it by the articular disc.
c. **Correct.** The articular disc is located between the mandibular condyle and the squamous portion of the temporal bone.
d. The postglenoid tubercle is located on the squamous portion of the temporal bone, and is not separated from it by the articular disc.

REF: p. 237

7. ANS: b

a. The peripheral areas of the articular disc are vascular and innervated.
b. **Correct.** The central area of the articular disc is avascular and aneural.
c. The peripheral areas of the articular disc are vascular and innervated.
d. The peripheral areas of the articular disc are vascular and innervated.

REF: p. 237

8. ANS: a

a. **Correct.** There is no superior band of the articular disc.
b. When the mouth is closed, the anterior band lies anterior to the condyle.
c. When the mouth is closed, the posterior band is located superior to the disc.
d. When the mouth is closed, the intermediate band is located along the articular eminence.

REF: p. 237

9. ANS: b

a. The lateral, not medial, portion is the main load-bearing area of the articular disc.
b. **Correct.** The lateral portion is the main load-bearing area of the articular disc.
c. The lateral, not anterior, portion is the main load-bearing area of the articular disc.
d. The lateral, not posterior, portion is the main load-bearing area of the articular disc.

REF: p. 237

10. ANS: d

a. The posterior, not medial, attachment is adjacent to the bilaminar zone.
b. The posterior, not lateral, attachment is adjacent to the bilaminar zone.
c. The posterior, not anterior, attachment is adjacent to the bilaminar zone.
d. **Correct.** The posterior attachment is adjacent to the bilaminar zone.

REF: p. 237

11. ANS: a

a. **Correct.** The inferior lamina attaches the inferior section of the posterior portion of the disc to the condyle.
b. The inferior lamina, not the retrodiscal pad, attaches the inferior section of the posterior portion of the disc to the condyle.
c. The inferior lamina, not the medial attachment, anchors the inferior section of the posterior portion of the disc to the condyle.
d. The anterior attachment secures the disc to the capsule, but not the condyle.

REF: p. 238

12. ANS: b

a. The inferior lamina is one of the components of the bilaminar zone.
b. **Correct.** The tympanic plate is not a component of the bilaminar zone.
c. The superior lamina is one of the components of the bilaminar zone.
d. The retrodiscal pad is one of the components of the bilaminar zone.

REF: p. 238

13. ANS: b

a. The TMJ is divided into inferior and superior, not lateral, compartments.
b. **Correct.** The TMJ is divided into inferior and superior compartments.
c. The TMJ is divided into inferior and superior, not anterior, compartments.
d. The TMJ is divided into inferior and superior, not posterior, compartments.

REF: p. 238

14. ANS: b

a. The TMJ is a synovial, not fibrous, joint.
b. **Correct.** The synovial lining along the internal surface of the TMJ compartments produces synovial fluid.
c. The TMJ is a synovial joint, not a symphysis (cartilaginous) joint.
d. The TMJ is a synovial, not cartilaginous, joint.

REF: p. 238

15. ANS: c

a. The volume of the superior compartment is 1.2 mL, not 0.5 mL.
b. The volume of the superior compartment is 1.2 mL, not 0.9 mL. The inferior compartment has a volume of 0.9 mL.
c. **Correct.** The volume of the superior compartment is 1.2 mL.
d. The volume of the superior compartment is 1.2 mL, not 1.5 mL.

REF: p. 238

16. ANS: c

a. Translational, not pivotal, movement of the TMJ is provided by the superior compartment.
b. Translational movement, not rotational, of the TMJ is provided by the superior compartment. Rotational movement is provided by the inferior compartment.
c. **Correct.** Within the TMJ the translational movement is provided by the superior compartment.
d. Translational, not circumductional, movement of the TMJ is provided by the superior compartment.

REF: p. 238

17. ANS: a

a. **Correct.** The capsule of the TMJ encloses the articular surfaces of both the condyle and the temporal bone.
b. The capsule, not ligaments, encloses the articular surfaces of the condyle and the temporal bone.
c. The capsule, not articular disc, encloses the articular surfaces of the condyle and the temporal bone.
d. The capsule, not compartments, encloses the articular surfaces of the condyle and the temporal bone.

REF: p. 238

18. ANS: b

a. The capsule of the TMJ is lined with a synovial membrane.
b. **Correct.** The collateral ligaments of the TMJ do not contain a synovial lining.
c. The inferior compartment of the TMJ contains endothelial cells that create a synovial lining.
d. The superior compartment of the TMJ contains endothelial cells that create a synovial lining.

REF: p. 238

19. ANS: a

a. **Correct.** The medial and lateral aspects of the capsule are toughened by ligaments.
b. The medial and lateral aspects, not inferior and anterior, are toughened by ligaments.
c. The medial and lateral aspects, not superior and inferior, are toughened by ligaments.
d. The medial and lateral aspects, not anterior and posterior, are toughened by ligaments.

REF: p. 238

20. ANS: d

a. The posterior, not medial, attachment of the capsule is along the retrodiscal pad. The medial attachment is along the medial collateral ligament.
b. The posterior, not inferior, attachment of the capsule is along the retrodiscal pad. The inferior attachment is along the condylar neck.
c. The posterior, not superior, attachment of the capsule is along the retrodiscal pad. The superior attachment is along the articular surfaces of the temporal bone.
d. **Correct.** The posterior site of attachment is along the retrodiscal pad.

REF: p. 238

21. ANS: b

a. Anterior protrusion of the mandible is limited by the stylomandibular ligament, not the medial collateral ligament.
b. **Correct.** The anterior protrusion of the mandible is limited by the stylomandibular ligament.
c. Anterior protrusion of the mandible is limited by the stylomandibular ligament, not the sphenomandibular ligament.
d. Anterior protrusion of the mandible is limited by the stylomandibular ligament, not the temporomandibular ligament.

REF: p. 239

22. ANS: b

a. The deep auricular artery supplies the TMJ.
b. **Correct.** The posterior auricular artery does not supply the TMJ.
c. The anterior tympanic artery supplies the TMJ.
d. The superficial temporal artery supplies the TMJ.

REF: p. 240

23. ANS: c

a. The anterior tympanic artery, not deep auricular artery, passes through the petrotympanic fissure to supply the TMJ.
b. The middle meningeal artery does not supply the TMJ.
c. **Correct.** The anterior tympanic artery passes through the petrotympanic fissure to supply the TMJ.
d. The anterior tympanic artery, not superficial temporal artery, passes through the petrotympanic fissure to supply the TMJ.

REF: p. 240

24. ANS: b

a. The deep auricular artery supplies the TMJ.
b. **Correct.** The transverse facial artery does not supply the TMJ.
c. The anterior tympanic artery supplies the TMJ.
d. The superficial temporal artery supplies the TMJ.

REF: p. 240

25. ANS: a

a. **Correct.** The maxillary, along with the superficial temporal veins, receives branches from the TMJ.
b. The maxillary, not the deep facial vein, receives branches from the TMJ.
c. The maxillary, not the transverse facial vein, receives branches from the TMJ.
d. The maxillary, not the posterior auricular vein, receives branches from the TMJ.

REF: p. 241

26. ANS: b

a. The maxillary and superficial temporal veins join to form the retromandibular vein, not the common facial vein.
b. **Correct.** The retromandibular vein is formed by the joining of the superficial temporal and maxillary veins.
c. The maxillary and superficial temporal veins join to form the retromandibular vein, not the posterior auricular vein.
d. The maxillary and superficial temporal veins join to form the retromandibular vein, not the superficial temporal vein.

REF: p. 241

27. ANS: c

a. The auriculotemporal nerve, not the masseteric, is part of the posterior division of the trigeminal nerve.
b. The mylohyoid nerve does not innervate the TMJ.
c. **Correct.** The auriculotemporal nerve is from the posterior division of the mandibular division of the trigeminal nerve.
d. The auriculotemporal nerve, not the posterior deep temporal, is part of the posterior division of the trigeminal nerve.

REF: p. 242

28. ANS: d

a. The posterior deep temporal nerve, not the masseteric nerve, supplies the TMJ and then innervates the temporalis muscle.
b. The inferior alveolar nerve does not innervate the TMJ.
c. The posterior deep temporal nerve, not the auriculotemporal nerve, supplies the TMJ and then innervates the temporalis muscle.
d. **Correct.** The posterior deep temporal nerve supplies the TMJ before innervating the temporalis muscle.

REF: p. 242

CHAPTER 10

Pterygopalatine Fossa

Multiple Choice

1. What is the shape of the pterygopalatine fossa?
   a. Cuboid.
   b. Rectangular.
   c. Pyramidal.
   d. Circular.

2. Which is not a content of the pterygopalatine fossa?
   a. Mandibular division of trigeminal nerve.
   b. Maxillary division of trigeminal nerve.
   c. Pterygopalatine ganglion.
   d. Third part of maxillary artery.

3. Which structure forms the anterior wall of the pterygopalatine fossa?
   a. Pterygoid process of sphenoid.
   b. Infratemporal surface of maxilla.
   c. Perpendicular plate of palatine bone.
   d. Pyramidal process of the palatine bone.

4. What is the location of the sphenopalatine foramen?
   a. Lateral part of pterygopalatine fossa.
   b. Superior part of pterygopalatine fossa.
   c. Medial wall of pterygopalatine fossa.
   d. Inferior part of pterygopalatine fossa.

5. What is the location of the inferior orbital fissure?
   a. Lateral part of pterygopalatine fossa.
   b. Superior part of pterygopalatine fossa.
   c. Medial wall of pterygopalatine fossa.
   d. Inferior part of pterygopalatine fossa.

6. What passes through the foramen rotundum?
   a. Greater palatine nerves and vessels.
   b. Maxillary division of trigeminal nerve.
   c. Nerve of pterygoid canal.
   d. Pharyngeal nerves.

7. What passes through the pterygomaxillary fissure?
  a. Posterior superior alveolar nerve.
  b. Nasopalatine nerve.
  c. Infraorbital nerve.
  d. Greater palatine nerve.

8. Which is the only branch of third part of maxillary artery that does not normally branch off within the pterygopalatine fossa?
  a. Sphenopalatine artery.
  b. Posterior superior alveolar artery.
  c. Infraorbital artery.
  d. Pharyngeal artery.

9. In which location is the infraorbital artery located on exiting the infraorbital foramen?
  a. Above the levator labii superioris.
  b. Above the levator anguli oris.
  c. Deep to the levator anguli oris.
  d. Between the levator labii superioris and levator anguli oris.

10. Which is not a branch of the third part of maxillary artery?
  a. Masseteric artery.
  b. Artery of pterygoid canal.
  c. Pharyngeal artery.
  d. Sphenopalatine artery.

11. Which of the following veins receive blood from the foramen lacerum region?
  a. Posterior superior alveolar.
  b. Pharyngeal.
  c. Sphenopalatine.
  d. Vein of pterygoid canal.

12. The first branch of inferior ophthalmic vein passes through which foramen/fissure?
  a. Superior orbital fissure.
  b. Inferior orbital fissure.
  c. Foramen lacerum.
  d. Sphenopalatine foramen.

13. Which vein receives blood from the hard and soft palate?
  a. Posterior superior alveolar.
  b. Pharyngeal.
  c. Descending palatine.
  d. Infraorbital.

14. Which branch of the maxillary division of trigeminal nerve passes on the posterior surface of the maxilla along the region of maxillary tuberosity?
  a. Posterior superior alveolar.
  b. Zygomatic.
  c. Infraorbital.
  d. Ganglionic branches.

15. Which two nerves unite to form the Vidian nerve (nerve of pterygoid canal)?
a. Greater petrosal and deep petrosal.
b. Lesser petrosal and greater petrosal.
c. Superficial petrosal and deep petrosal.
d. Lesser petrosal and deep petrosal.

16. Which type of fibers are carried by the deep petrosal nerve?
a. Preganglionic parasympathetic fibers.
b. Postganglionic parasympathetic fibers.
c. Preganglionic sympathetic fibers.
d. Postganglionic sympathetic fibers.

17. Postganglionic parasympathetic fibers arising in the pterygopalatine ganglion are distributed to all of the following areas, EXCEPT:
a. Lacrimal gland.
b. Submandibular gland.
c. Nasal glands.
d. Palatine glands.

18. Which branch of the ophthalmic division of trigeminal nerve joins with a communicating branch from the zygomatic nerve to supply the lacrimal gland?
a. Frontal.
b. Lacrimal.
c. Nasociliary.
d. All of the above.

19. Which nerve is considered to be the continuation of the maxillary division of trigeminal nerve?
a. Posterior superior alveolar.
b. Zygomatic.
c. Ganglionic branches.
d. Infraorbital.

20. Which branch of the pterygopalatine ganglion supplies the palatal gingiva and mucosa from the central incisors to the canines?
a. Nasopalatine.
b. Posterior superior alveolar.
c. Greater palatine.
d. Lesser palatine.

Feedback

1. ANS: c
a. The shape of the pterygopalatine fossa is pyramidal and not cuboid.
b. The shape of the pterygopalatine fossa is pyramidal and not rectangular.
c. **Correct.** The shape of the pterygopalatine fossa is pyramidal.
d. The shape of the pterygopalatine fossa is pyramidal and not circular.

REF: p. 248

2. ANS: a

a. **Correct.** Mandibular division of trigeminal nerve is a content of infratemporal fossa.
b. Maxillary division of trigeminal nerve is a content of the pterygopalatine fossa.
c. Pterygopalatine ganglion is a content of the pterygopalatine fossa.
d. Third part of maxillary artery is a content of the pterygopalatine fossa.

REF: p. 248

3. ANS: b

a. Pterygoid process of sphenoid forms the posterior wall of pterygopalatine fossa.
b. **Correct.** Infratemporal surface of maxilla forms the anterior wall of pterygopalatine fossa.
c. Perpendicular plate of palatine bone forms the medial wall of pterygopalatine fossa.
d. Pyramidal process of the palatine bone forms the inferior wall of pterygopalatine fossa.

REF: p. 249

4. ANS: c

a. The sphenopalatine foramen is located on the medial wall and not lateral part.
b. The sphenopalatine foramen is located on the medial wall and not superior part.
c. **Correct.** The sphenopalatine foramen is located on the medial wall.
d. The sphenopalatine foramen is located on the medial wall and not inferior part.

REF: p. 249

5. ANS: b

a. The inferior orbital fissure is located in the superior part and not lateral part.
b. **Correct.** The inferior orbital fissure is located in the superior part.
c. The inferior orbital fissure is located in the superior part and not medial wall.
d. The inferior orbital fissure is located in the superior part and not inferior part.

REF: p. 249

6. ANS: b

a. Greater palatine nerves and vessels pass through the palatine canal.
b. **Correct.** Maxillary division of trigeminal nerve passes through the foramen rotundum.
c. Nerve of pterygoid canal passes through the pterygoid canal.
d. Pharyngeal nerves pass through the pharyngeal canal.

REF: p. 249

7. ANS: a

a. **Correct.** Posterior superior alveolar nerve passes through the pterygomaxillary fissure.
b. Nasopalatine nerve passes through the sphenopalatine foramen.
c. Infraorbital nerve passes through the inferior orbital fissure.
d. Greater palatine nerve passes through the palatine canal.

REF: p. 249

8. ANS: b
- a. Sphenopalatine artery does branch in the pterygopalatine fossa.
- b. **Correct.** Posterior superior alveolar artery does not branch in the pterygopalatine fossa.
- c. Infraorbital artery does branch in the pterygopalatine fossa.
- d. Pharyngeal artery does branch in the pterygopalatine fossa.

REF: p. 252

9. ANS: d
- a. It is not located above the levator labii superioris.
- b. It is not located above the levator anguli oris.
- c. It is not located deep to the levator anguli oris.
- d. **Correct.** It is located between the levator labii superioris and levator anguli oris.

REF: p. 252

10. ANS: a
- a. **Correct.** Masseteric artery is a branch of second part of maxillary artery not third.
- b. Artery of pterygoid canal is a branch of third part of maxillary artery.
- c. Pharyngeal artery is a branch of third part of maxillary artery.
- d. Sphenopalatine artery is a branch of third part of maxillary artery.

REF: p. 252

11. ANS: d
- a. Posterior superior alveolar vein receives blood from posterior teeth and soft tissue.
- b. Pharyngeal vein receives blood from nasopharynx.
- c. Sphenopalatine vein receives blood from nasal cavity and nasal septum.
- d. **Correct.** Vein of pterygoid canal receives blood from foramen lacerum region.

REF: p. 254

12. ANS: b
- a. It passes through inferior orbital fissure and not superior orbital fissure.
- b. **Correct.** The first branch of inferior ophthalmic vein passes through inferior orbital fissure.
- c. It passes through inferior orbital fissure and not foramen lacerum.
- d. It passes through inferior orbital fissure and not sphenopalatine foramen.

REF: p. 254

13. ANS: c
- a. Posterior superior alveolar vein receives blood from posterior teeth and soft tissue.
- b. Pharyngeal vein receives blood from nasopharynx.
- c. **Correct.** Descending palatine vein receives blood from the hard and soft palate.
- d. Infraorbital vein receives blood from midface.

REF: p. 254

14. ANS: a

a. **Correct.** Posterior superior alveolar nerve passes on the posterior surface of the maxilla along the region of maxillary tuberosity.
b. Zygomatic nerve does not pass along the region of maxillary tuberosity.
c. Infraorbital nerve does not pass along the region of maxillary tuberosity.
d. Ganglionic branches do not pass along the region of maxillary tuberosity.

REF: p. 255

15. ANS: a

a. **Correct.** Greater petrosal and deep petrosal unite to form the Vidian nerve.
b. Lesser petrosal and greater petrosal do not unite to form the Vidian nerve.
c. Superficial petrosal and deep petrosal do not unite to form the Vidian nerve.
d. Lesser petrosal and deep petrosal do not unite to form the Vidian nerve.

REF: p. 257

16. ANS: d

a. Preganglionic parasympathetic fibers are not carried by deep petrosal nerve.
b. Postganglionic parasympathetic fibers are not carried by deep petrosal nerve.
c. Preganglionic sympathetic fibers are not carried by deep petrosal nerve.
d. **Correct.** Postganglionic sympathetic fibers are carried by the deep petrosal nerve.

REF: p. 257

17. ANS: b

a. Lacrimal gland receives postganglionic parasympathetic fibers from pterygopalatine ganglion.
b. **Correct.** Submandibular gland receives postganglionic parasympathetic fibers from submandibular ganglion.
c. Nasal glands receive postganglionic parasympathetic fibers from pterygopalatine ganglion.
d. Palatine glands receive postganglionic parasympathetic fibers from pterygopalatine ganglion.

REF: p. 259

18. ANS: b

a. Frontal nerve does not join with a communicating branch from zygomatic nerve.
b. **Correct.** Lacrimal nerve joins with a communicating branch from zygomatic nerve.
c. Nasociliary nerve does not join with a communicating branch from zygomatic nerve.
d. All of the above do not join with a communicating branch from zygomatic nerve.

REF: p. 259

19. ANS: d

a. Posterior superior alveolar nerve is not a continuation of maxillary division of trigeminal nerve.
b. Zygomatic is not a continuation of maxillary division of trigeminal nerve.
c. Ganglionic branches are not a continuation of maxillary division of trigeminal nerve.
d. **Correct.** Infraorbital nerve is a continuation of maxillary division of trigeminal nerve.

REF: p. 255

20. ANS: a

a. **Correct.** Nasopalatine branch supplies the palatal gingiva and mucosa from the central incisors to the canines.
b. Posterior superior alveolar supplies the lateral wall of nasal cavity and posterosuperior portion of nasal septum
c. Greater palatine supplies the palatal gingiva and mucosa from the premolar region to posterior border of hard palate to midline.
d. Lesser palatine supplies the soft palate.

REF: p. 257

CHAPTER 11

Nose and Nasal Cavity

Multiple Choice

1. Which bone does NOT create the root of the nose?
   a. Nasal.
   b. Frontal.
   c. Maxilla.
   d. Lacrimal.

2. Which is NOT a cartilage that helps to form the nose?
   a. Alar.
   b. Septal.
   c. Lateral.
   d. Cricoid.

3. Which describes vibrissae of the vestibule?
   a. Mucous.
   b. Cartilage.
   c. Lymph nodes.
   d. Short, coarse hairs.

4. Which structure connects the apex of the nose to the philtrum of the lip?
   a. Atrium.
   b. Septal cartilage of the nose.
   c. Ala of the nose.
   d. Tubercle of the lip.

5. Which major artery does NOT supply blood to the nose?
   a. Facial.
   b. Maxillary.
   c. Ophthalmic.
   d. Superficial temporal.

6. Which is the source of the ophthalmic artery?
   a. Maxillary artery.
   b. Superior labial artery.
   c. Internal carotid artery.
   d. External carotid artery.

7. The superior labial artery is a branch of which artery?
   a. Facial.
   b. Maxillary.
   c. Dorsal nasal.
   d. External nasal.

8. Which branch of the facial artery does NOT supply the nose?
   a. Alar.
   b. Lateral nasal.
   c. Inferior labial.
   d. Superior labial.

9. Which artery arises within the orbit?
   a. Septal.
   b. Dorsal nasal.
   c. Lateral nasal.
   d. Nasal branch of the infraorbital.

10. Which artery helps to supply the ala of the nose?
   a. Septal.
   b. Dorsal nasal.
   c. Lateral nasal.
   d. External nasal.

11. The lateral nasal artery arises at which location?
   a. Within the orbit.
   b. Inferior to the orbit.
   c. Along the side of the nose.
   d. At the corner of the mouth.

12. Which vein is formed as the supraorbital and supratrochlear veins join?
   a. Facial.
   b. Angular.
   c. Retromandibular.
   d. Superior ophthalmic.

13. Which vein collects blood from the roof of the orbit?
   a. Facial.
   b. Angular.
   c. Inferior ophthalmic.
   d. Superior ophthalmic.

14. Which vein becomes the facial vein?
   a. Angular.
   b. Deep facial.
   c. Supraorbital.
   d. Superior ophthalmic.

15. Which cranial nerve provides sensory innervation to the nose?
   a. Facial.
   b. Trochlear.
   c. Abducens.
   d. Trigeminal.

16. Which is NOT a branch of the ophthalmic division of the trigeminal nerve?
   a. Frontal.
   b. Lacrimal.
   c. Nasociliary.
   d. Infraorbital.

17. Which area does the infratrochlear nerve supply?
   a. Ala of the nose.
   b. Apex of the nose.
   c. Bridge of the nose.
   d. Lining of the vestibule.

18. Which is NOT a branch of the maxillary division of the trigeminal nerve?
   a. Zygomatic.
   b. Ganglionic.
   c. Infraorbital.
   d. Internal nasal.

19. Which is NOT a terminal branch of the infraorbital nerve?
   a. Nasal.
   b. Nasociliary.
   c. Superior labial.
   d. Inferior palpebral.

20. The apex of the nose is supplied by which nerve?
   a. Internal nasal.
   b. Infratrochlear.
   c. External nasal.
   d. Nasal branch of the infraorbital.

21. Which type of epithelium lines the nasal cavity?
   a. Simple columnar.
   b. Stratified cuboidal.
   c. Stratified squamous.
   d. Pseudostratified columnar.

22. Which type of epithelium is found around the cribriform plate?
   a. Corneal.
   b. Olfactory.
   c. Transitional.
   d. Keratinized.

23. Which foramen is located within the nasal cavity?
   a. Cecum.
   b. Lacerum.
   c. Infraorbital.
   d. Sphenopalatine.

24. The nasolacrimal duct drains into which structure of the nasal cavity?
   a. Conchae.
   b. Lateral walls.
   c. Nasal septum.
   d. Piriform aperture.

25. Which structure lies between the superior nasal meatus and the middle nasal meatus?
   a. Torus tubarius.
   b. Middle nasal concha.
   c. Superior nasal concha.
   d. Sphenoethmoidal recess.

26. Which does NOT form the superior border of the nasal cavity?
   a. Nasal bone.
   b. Frontal bone.
   c. Lacrimal bone.
   d. Body of the sphenoid bone.

27. The choanae form which boundary of the nasal cavity?
   a. Lateral.
   b. Inferior.
   c. Anterior.
   d. Posterior.

28. Which structure does NOT form the septum border of the nasal cavity?
   a. Vomer.
   b. Ethmoid.
   c. Sphenoid.
   d. Septal cartilage.

Feedback

1. ANS: d
   a. The nasal bone helps to create the root of the nose.
   b. The nasal process of the frontal bone helps to create the root of the nose.
   c. The frontal process of the maxilla helps to create the root of the nose.
   d. **Correct.** The lacrimal bone does not create the root of the nose.

   REF: p. 268

2. ANS: d
   a. Alar cartilage helps to form the wings of the nose.
   b. Septal cartilage helps to form the dorsum of the nose.
   c. Lateral nasal cartilage helps to form the dorsum of the nose.
   d. **Correct.** Cricoid cartilage forms the larynx, not the nose.

   REF: p. 268

3. ANS: d
   a. Vibrissae are short, coarse hairs lining the vestibule, not mucous.
   b. Vibrissae are short, coarse hairs lining the vestibule, not cartilage.
   c. Vibrissae are short, coarse hairs lining the vestibule, not lymph nodes.
   d. **Correct.** The short, coarse hairs lining the vestibule are called vibrissae.

   REF: p. 268

4. ANS: b
   a. The atrium does not connect the apex of the nose with the philtrum.
   b. **Correct.** The septal cartilage of the nose separates the nostrils and connects the apex of the nose to the philtrum.
   c. The ala of the nose are the wings of the nostrils, and do not connect the apex and the philtrum.
   d. The tubercle of the lip does not connect the apex of the nose with the philtrum.

   REF: p. 268

5. ANS: d
   a. The facial artery does supply blood to the nose.
   b. The maxillary artery does supply blood to the nose.
   c. The ophthalmic artery does supply blood to the nose.
   d. **Correct.** The superficial temporal artery does not supply blood to the nose.

   REF: p. 269

6. ANS: c
   a. The source of the ophthalmic artery is the internal carotid, not the maxillary, artery.
   b. The source of the ophthalmic artery is the internal carotid, not the superior labial, artery.
   c. **Correct.** The ophthalmic artery is a branch of the internal carotid artery.
   d. The source of the ophthalmic artery is the internal carotid, not the external carotid, artery.

   REF: p. 269

7. ANS: a
   a. **Correct.** The facial artery gives rise to the superior labial artery near the corner of the mouth.
   b. The facial artery, not the maxillary, gives rise to the superior labial artery.
   c. The facial artery, not the dorsal nasal, gives rise to the superior labial artery.
   d. The facial artery, not the external nasal, gives rise to the superior labial artery.

   REF: p. 271

8. ANS: c

a. The ala of the nose is supplied by the alar artery, which is a branch of the superior labial artery off the facial artery.
b. The lateral nasal artery supplies the nose.
c. **Correct.** The inferior labial branch of the facial artery does not supply the nose.
d. The superior labial artery gives rise to branches that supply the nose.

REF: p. 271

9. ANS: b

a. The septal artery does not arise within the orbit.
b. **Correct.** The dorsal nasal artery branches from the ophthalmic artery within the orbit.
c. The lateral nasal artery does not arise within the orbit.
d. The nasal branch of the infraorbital artery does not arise within the orbit.

REF: p. 270

10. ANS: c

a. The septal artery supplies the septum, not the ala of the nose.
b. The dorsal nasal artery supplies the bridge of the nose, not the ala.
c. **Correct.** The lateral nasal artery supplies the ala of the nose, along with the alar artery.
d. The external nasal artery does not supply the ala of the nose.

REF: p. 271

11. ANS: c

a. The lateral nasal artery arises along the side of the nose, not within the orbit.
b. The lateral nasal artery arises along the side of the nose, not inferior to the orbit.
c. **Correct.** The lateral nasal artery arises along the side of the nose.
d. The lateral nasal artery arises along the side of the nose, not at the corner of the mouth.

REF: p. 271

12. ANS: b

a. The angular vein, not the facial vein, is formed as the supraorbital and supratrochlear veins join.
b. **Correct.** The angular vein is formed as the supraorbital and supratrochlear veins join.
c. The angular vein, not the retromandibular vein, is formed as the supraorbital and supratrochlear veins join.
d. The angular vein, not the superior ophthalmic vein, is formed as the supraorbital and supratrochlear veins join.

REF: p. 272

13. ANS: d

a. Blood from the roof of the orbit is received by the superior ophthalmic vein, not the facial vein.
b. Blood from the roof of the orbit is received by the superior ophthalmic vein, not the angular vein.
c. Blood from the roof of the orbit is received by the superior ophthalmic vein, not the inferior ophthalmic.
d. **Correct.** Blood from the roof of the orbit is received by the superior ophthalmic vein.

REF: p. 272

14. ANS: a

a. **Correct.** The angular vein travels inferiorly along the side of the nose and becomes the facial vein.
b. The angular vein, not the deep facial vein, becomes the facial vein.
c. The angular vein, not the supraorbital vein, becomes the facial vein.
d. The angular vein, not the superior ophthalmic vein, becomes the facial vein.

REF: p. 272

15. ANS: d

a. The trigeminal nerve, not the facial nerve, provides innervation to the nose.
b. The trigeminal nerve, not the trochlear nerve, provides innervation to the nose.
c. The trigeminal nerve, not the abducens nerve, provides innervation to the nose.
d. **Correct.** The trigeminal nerve provides sensory innervation to the nose through the maxillary and ophthalmic branches.

REF: p. 273

16. ANS: d

a. The frontal nerve is a branch of the ophthalmic division of the trigeminal nerve.
b. The lacrimal nerve is a branch of the ophthalmic division of the trigeminal nerve.
c. The nasociliary nerve is a branch of the ophthalmic division of the trigeminal nerve.
d. **Correct.** The infraorbital nerve is a branch from the maxillary division of the trigeminal nerve, not the ophthalmic division.

REF: p. 273

17. ANS: c

a. The infratrochlear nerve innervates the skin along the bridge of the nose, not the ala of the nose.
b. The infratrochlear nerve innervates the skin along the bridge of the nose, not the apex of the nose.
c. **Correct.** The infratrochlear nerve innervates the skin along the bridge of the nose.
d. The infratrochlear nerve innervates the skin along the bridge of the nose, not the lining of the vestibule.

REF: p. 273

18. ANS: d

a. The zygomatic nerve is a branch of the maxillary division of the trigeminal nerve.
b. The ganglionic nerve is a branch of the maxillary division of the trigeminal nerve.
c. The infraorbital nerve is the continuing branch of the maxillary division of the trigeminal nerve.
d. **Correct.** The internal nasal nerve is a terminal branch of the anterior ethmoid nerve from the ophthalmic division of the trigeminal nerve, not the maxillary division.

REF: p. 273

19. ANS: b

a. The nasal nerve is one of the terminal branches of the infraorbital nerve.
b. **Correct.** The nasociliary nerve is a branch of the ophthalmic division of the trigeminal nerve, not a terminal branch of the infraorbital nerve.
c. The superior labial nerve is one of the terminal branches of the infraorbital nerve.
d. The inferior palpebral nerve is one of the terminal branches of the infraorbital nerve.

REF: p. 273

20. ANS: c

a. The apex of the nose is supplied by the external nasal nerve, not the internal nasal nerve.
b. The apex of the nose is supplied by the external nasal nerve, not the infratrochlear nerve.
c. **Correct.** The external nasal nerve supplies the apex of the nose around the nares as well as the skin of the ala.
d. The apex of the nose is supplied by the external nasal nerve, not the nasal nerve.

REF: p. 273

21. ANS: d

a. The nasal cavity is lined with pseudostratified columnar epithelium, not simple columnar epithelium.
b. The nasal cavity is lined with pseudostratified columnar epithelium, not stratified cuboidal epithelium.
c. The nasal cavity is lined with pseudostratified columnar epithelium, not stratified squamous epithelium.
d. **Correct.** The nasal cavity is lined with pseudostratified columnar epithelium.

REF: p. 276

22. ANS: b

a. Corneal epithelium is found in the eyes, not the nasal cavity.
b. **Correct.** Around the cribriform plate, at the superior portion of the nasal cavity, olfactory epithelium can be found.
c. Olfactory epithelium, not transitional epithelium, is found around the cribriform plate at the superior portion of the nasal cavity.
d. Olfactory epithelium, not keratinized epithelium, is found around the cribriform plate at the superior portion of the nasal cavity.

REF: p. 276

23. ANS: d

a. The sphenopalatine foramen, not the foramen cecum, is located within the nasal cavity.
b. The sphenopalatine foramen, not the foramen lacerum, is located within the nasal cavity.
c. The sphenopalatine foramen, not the infraorbital foramen, is located within the nasal cavity.
d. **Correct.** The sphenopalatine foramen is located within the nasal cavity and connects it with the pterygopalatine fossa.

REF: p. 276

24. ANS: b

a. The nasolacrimal duct drains into the lateral walls of the nasal cavity, not the conchae.
b. **Correct.** The nasolacrimal duct, as well as the paranasal sinuses, all drain into the lateral walls.
c. The nasolacrimal duct drains into the lateral walls of the nasal cavity, not the nasal septum.
d. The nasolacrimal duct drains into the lateral walls of the nasal cavity, not the piriform aperture.

REF: p. 276

25. ANS: b

a. The middle nasal concha, not the torus tubarius, lies between the superior nasal meatus and the middle nasal meatus.
b. **Correct.** The middle nasal concha lies between the superior nasal meatus and the middle nasal meatus.
c. The middle nasal concha, not the superior nasal concha, lies between the superior nasal meatus and the middle nasal meatus.
d. The middle nasal concha, not the sphenoethmoidal recess, lies between the superior nasal meatus and the middle nasal meatus.

REF: p. 279

26. ANS: c

a. The nasal bone does help form the superior border of the nasal cavity.
b. The frontal bone does help form the superior border of the nasal cavity.
c. **Correct.** The lacrimal bone does not help form the superior border of the nasal cavity, but helps to form the lateral border.
d. The body of the sphenoid bone does form the superior border of the nasal cavity.

REF: p. 277

27. ANS: d

a. The choanae form the posterior, not lateral, boundary of the nasal cavity.
b. The choanae form the posterior, not inferior, boundary of the nasal cavity.
c. The choanae form the posterior, not anterior, boundary of the nasal cavity.
d. **Correct.** The choanae form the posterior boundary of the nasal cavity.

REF: p. 277

28. ANS: c

a. The septum border of the nasal cavity is formed in part by the vomer.
b. The septum border of the nasal cavity is formed in part by the perpendicular plate of the ethmoid bone.
c. **Correct.** The sphenoid does not form the septum border of the nasal cavity.
d. The septum border of the nasal cavity is formed in part by the septal cartilage.

REF: p. 277

CHAPTER 12

Paranasal Sinuses

Multiple Choice

1. The paranasal sinuses drain into which anatomical feature of the nasal cavity?
   a. Lateral wall.
   b. Nasal septum.
   c. Nasal conchae.
   d. Cribriform plate.

2. Which type of epithelium lines the paranasal sinuses?
   a. Corneal.
   b. Olfactory.
   c. Respiratory.
   d. Keratinized.

3. Which sinuses are located within the frontal bone?
   a. Frontal.
   b. Ethmoid.
   c. Sphenoid.
   d. Maxillary.

4. Which sinuses are located within the sphenoid bone?
   a. Frontal.
   b. Ethmoid.
   c. Sphenoid.
   d. Maxillary.

5. Which sinus has a triangular shape?
   a. Frontal.
   b. Ethmoid.
   c. Sphenoid.
   d. Maxillary.

6. Which sinus is composed of multiple cells, which are irregularly shaped?
   a. Frontal.
   b. Ethmoid.
   c. Sphenoid.
   d. Maxillary.

7. Which sinus is cuboidal in shape?
  a. Frontal.
  b. Ethmoid.
  c. Sphenoid.
  d. Maxillary.

8. Which sinus develops first?
  a. Frontal.
  b. Ethmoid.
  c. Sphenoid.
  d. Maxillary.

9. Which sinus has a pyramidal shape?
  a. Frontal.
  b. Ethmoid.
  c. Sphenoid.
  d. Maxillary.

10. Which sinus is supplied completely by branches of the ophthalmic artery?
  a. Frontal.
  b. Ethmoid.
  c. Sphenoid.
  d. Maxillary.

11. Which sinus is supplied completely by branches of the maxillary artery?
  a. Frontal.
  b. Ethmoid.
  c. Sphenoid.
  d. Maxillary.

12. Which nerve innervates the frontal sinus?
  a. Facial.
  b. Maxillary.
  c. Olfactory.
  d. Ophthalmic.

13. Which branch of the trigeminal nerve innervates the maxillary sinus?
  a. Facial.
  b. Maxillary.
  c. Olfactory.
  d. Ophthalmic.

14. Which cranial nerve innervates all paranasal sinuses?
  a. Facial.
  b. Trochlear.
  c. Olfactory.
  d. Trigeminal.

15. Within which structure does the middle superior alveolar branch form the infraorbital nerve?
  a. Infraorbital canal.
  b. Pterygopalatine fossa.
  c. Superior dental plexus.
  d. Pterygomaxillary fissure.

16. The posterior superior alveolar nerve begins in which location?
  a. Palatine canal.
  b. Infraorbital canal.
  c. Pterygopalatine fossa.
  d. Pterygomaxillary fissure.

17. Which branch of the maxillary division of the trigeminal nerve helps to form the superior dental plexus?
  a. Zygomatic.
  b. Infraorbital.
  c. Superior labial.
  d. Posterior superior alveolar.

18. Which branch of the maxillary division of the trigeminal nerve is not always present?
  a. Nasopalatine.
  b. Lesser palatine.
  c. Middle superior alveolar.
  d. Anterior superior alveolar.

19. Which sinus is located directly inferior to the eyes?
  a. Frontal.
  b. Ethmoid.
  c. Sphenoid.
  d. Maxillary.

Feedback

1. ANS: a
  a. **Correct.** The paranasal sinuses drain into the lateral walls of the nasal cavity.
  b. The paranasal sinuses drain into the lateral walls of the nasal cavity, not the nasal septum.
  c. The paranasal sinuses drain into the lateral walls of the nasal cavity, not the nasal conchae.
  d. The paranasal sinuses drain into the lateral walls of the nasal cavity, not the cribriform plate.

  REF: p. 300

2. ANS: c
  a. The paranasal sinuses are lined with respiratory epithelium, not corneal epithelium which is found in the eyes.
  b. The paranasal sinuses are lined with respiratory epithelium, not olfactory epithelium like that found around the cribriform plate.
  c. **Correct.** Respiratory epithelium lines the paranasal sinuses.
  d. The paranasal sinuses are lined with respiratory epithelium, which is not keratinized.

  REF: p. 300

3. ANS: a
   a. **Correct.** The frontal sinuses are located within the frontal bone.
   b. The frontal sinuses are located within the frontal, not ethmoid, bone.
   c. The frontal sinuses are located within the frontal, not sphenoid, bone.
   d. The frontal sinuses are located within the frontal, not maxillary, bone.

   REF: p. 301

4. ANS: c
   a. The sphenoid sinus is located within the sphenoid, not frontal, bone.
   b. The sphenoid sinus is located within the sphenoid, not ethmoid, bone.
   c. **Correct.** The sphenoid sinus is located within the sphenoid bone.
   d. The sphenoid sinus is located within the sphenoid, not maxillary, bone.

   REF: p. 301

5. ANS: a
   a. **Correct.** The frontal sinus has a triangular shape.
   b. The frontal, not ethmoid, sinus has a triangular shape.
   c. The frontal, not sphenoid, sinus has a triangular shape.
   d. The frontal, not maxillary, sinus has a triangular shape.

   REF: p. 301

6. ANS: b
   a. The ethmoid, not frontal, sinus is composed of multiple irregularly shaped cells.
   b. **Correct.** The ethmoid sinus is composed of between 3 and 18 cells of irregular shape.
   c. The ethmoid, not sphenoid, sinus is composed of multiple irregularly shaped cells.
   d. The ethmoid, not maxillary, sinus is composed of multiple irregularly shaped cells.

   REF: p. 301

7. ANS: c
   a. The sphenoid, not frontal, sinus is cuboidal in shape.
   b. The sphenoid, not ethmoid, sinus is cuboidal in shape.
   c. **Correct.** The sphenoid sinus is cuboidal in shape.
   d. The sphenoid, not maxillary, sinus is cuboidal in shape.

   REF: p. 301

8. ANS: d
   a. The maxillary, not frontal, sinus is the first to develop.
   b. The maxillary, not ethmoid, sinus is the first to develop.
   c. The maxillary, not sphenoid, sinus is the first to develop.
   d. **Correct.** The maxillary sinus is the first sinus to develop.

   REF: p. 301

9. ANS: d

a. The maxillary, not frontal, sinus has a pyramidal shape.
b. The maxillary, not ethmoid, sinus has a pyramidal shape.
c. The maxillary, not sphenoid, sinus has a pyramidal shape.
d. **Correct.** The maxillary sinus has a pyramidal shape.

REF: p. 301

10. ANS: a

a. **Correct.** The frontal sinus is supplied completely by branches of the ophthalmic artery.
b. The frontal sinus, not the ethmoid sinus, is supplied completely by the ophthalmic artery.
c. The frontal sinus, not the sphenoid sinus, is supplied completely by the ophthalmic artery.
d. The frontal sinus, not the maxillary sinus, is supplied completely by the ophthalmic artery.

REF: p. 301

11. ANS: d

a. The maxillary sinus, not the frontal sinus, is supplied completely by branches of the maxillary artery.
b. The maxillary sinus, not the ethmoid sinus, is supplied completely by branches of the maxillary artery.
c. The maxillary sinus, not the sphenoid sinus, is supplied completely by branches of the maxillary artery.
d. **Correct.** The maxillary sinus is supplied completely by branches of the maxillary artery.

REF: p. 301

12. ANS: d

a. The ophthalmic division of the trigeminal nerve, not the facial nerve, innervates the frontal sinus.
b. The ophthalmic, not maxillary, division of the trigeminal nerve innervates the frontal sinus.
c. The ophthalmic division of the trigeminal nerve, not the olfactory nerve, innervates the frontal sinus.
d. **Correct.** The ophthalmic division of the trigeminal nerve innervates the frontal sinus.

REF: p. 301

13. ANS: b

a. The maxillary division of the trigeminal nerve, not the facial nerve, innervates the maxillary sinus.
b. **Correct.** The maxillary division of the trigeminal nerve innervates the maxillary sinus.
c. The maxillary division of the trigeminal nerve, not the olfactory nerve, innervates the maxillary sinus.
d. The maxillary, not ophthalmic, division of the trigeminal nerve innervates the maxillary sinus.

REF: p. 301

14. ANS: d

a. The trigeminal nerve, not the facial nerve, innervates all the sinuses through the maxillary and ophthalmic divisions.
b. The trigeminal nerve, not the trochlear nerve, innervates all the sinuses through the maxillary and ophthalmic divisions.
c. The trigeminal nerve, not the olfactory nerve, innervates all the sinuses through the maxillary and ophthalmic divisions.
d. **Correct.** The trigeminal nerve innervates all the sinuses through the maxillary and ophthalmic divisions.

REF: p. 301

15. ANS: a

a. **Correct.** Within the infraorbital canal the middle (and anterior) superior alveolar nerves branch from the infraorbital nerve.
b. The middle superior alveolar nerve branches from the infraorbital nerve within the infraorbital canal, not the pterygopalatine fossa.
c. The middle superior alveolar nerve branches from the infraorbital nerve within the infraorbital canal, not the superior dental plexus.
d. The middle superior alveolar nerve branches from the infraorbital nerve within the infraorbital canal, not the pterygomaxillary fissure.

REF: p. 312

16. ANS: c

a. The posterior superior alveolar nerve begins within the pterygopalatine fossa, not the palatine canal.
b. The posterior superior alveolar nerve begins within the pterygopalatine fossa, not the infraorbital canal.
c. **Correct.** The posterior superior alveolar nerve begins within the pterygopalatine fossa.
d. The posterior superior alveolar nerve begins within the pterygopalatine fossa, not the pterygomaxillary fissure.

REF: p. 312

17. ANS: d

a. The posterior superior alveolar nerve, not the zygomatic nerve, helps to form the superior dental plexus.
b. The posterior superior alveolar nerve, not the infraorbital nerve, helps to form the superior dental plexus.
c. The posterior superior alveolar nerve, not the superior labial nerve, helps to form the superior dental plexus.
d. **Correct.** The posterior superior alveolar, anterior superior alveolar, and middle superior alveolar nerves all form the superior dental plexus.

REF: p. 313

18. ANS: c

a. The middle superior alveolar nerve, not the nasopalatine nerve, is not always present.
b. The middle superior alveolar nerve, not the lesser palatine nerve, is not always present.
c. **Correct.** The middle superior alveolar nerve is not always present.
d. The middle superior alveolar nerve, not the anterior superior alveolar nerve, is not always present.

REF: p. 313

19. ANS: d

a. The maxillary sinus, not the frontal sinus, is located directly inferior to the eyes.
b. The maxillary sinus, not the ethmoid sinus, is located directly inferior to the eyes.
c. The maxillary sinus, not the sphenoid sinus, is located directly inferior to the eyes.
d. **Correct.** The maxillary sinus is located directly inferior to the eyes within the maxillary bone.

REF: pp. 301, 311

CHAPTER 13

Oral Cavity

Multiple Choice

1. Which divides the vestibule from the oral cavity proper?
   a. Lips.
   b. Teeth.
   c. Cheeks.
   d. Tongue.

2. The upper and lower lips meet at which location?
   a. Philtrum.
   b. Frenulum.
   c. Vestibule.
   d. Commissure.

3. Which is also called the “red zone”?
   a. Philtrum.
   b. Vestibule.
   c. Vermilion zone.
   d. Vermilion border.

4. The buccinator muscle forms the muscular “skeleton” of which structure?
   a. Lips.
   b. Cheeks.
   c. Frenula.
   d. Mucolabial fold.

5. Which type of epithelium lines the cheeks?
   a. Simple cuboidal.
   b. Simple squamous.
   c. Stratified cuboidal.
   d. Stratified squamous.

6. Which artery is the immediate source of the mental artery?
   a. Facial.
   b. Maxillary.
   c. Infraorbital.
   d. Inferior alveolar.

7. The upper lip is supplied by the superior labial branch of the infraorbital artery and which other artery?
   a. Mental.
   b. Buccal.
   c. Inferior labial branch of the facial.
   d. Superior labial branch of the facial.

8. Which vein drains the cheek?
   a. Mental.
   b. Buccal.
   c. Inferior labial branch of the facial.
   d. Superior labial branch of the facial.

9. Which vein drains both the lower lip and the chin?
   a. Mental.
   b. Buccal.
   c. Inferior labial branch of the facial.
   d. Superior labial branch of the facial.

10. Which cranial nerve supplies all motor innervation to the muscles of facial expression?
   a. Facial.
   b. Trochlear.
   c. Abducens.
   d. Trigeminal.

11. All sensory innervation to the skin of the lips, chin and cheeks is from which cranial nerve?
   a. Facial.
   b. Trochlear.
   c. Trigeminal.
   d. Glossopharyngeal.

12. Which nerve supplies the mandibular molar gingiva?
   a. Mental.
   b. Inferior alveolar.
   c. Buccal branch of the trigeminal.
   d. Superior labial branch of the infraorbital.

13. The hard palate forms which boundary for the oral cavity?
   a. Lateral.
   b. Inferior.
   c. Superior.
   d. Posterosuperior.

14. Which opening is located in the anterior midline of the hard palate?
   a. Mental foramen.
   b. Incisive foramen.
   c. Lesser palatine foramina.
   d. Greater palatine foramina.

15. Which bone forms the anterior portion of the hard palate?
   a. Maxilla.
   b. Palatine.
   c. Sphenoid.
   d. Mandible.

16. The soft palate makes up which amount of the entire palate?
   a. ¼.
   b. ⅓.
   c. ½.
   d. ⅔.

17. Which muscle does NOT comprise the soft palate?
   a. Palatopharyngeus.
   b. Musculus uvulae.
   c. Levator veli palatini.
   d. Superior pharyngeal constrictor.

18. The palatoglossus muscle elevates the
   a. uvula.
   b. tongue.
   c. pharynx.
   d. soft palate.

19. Which is the inferior boundary of the cheek?
   a. Labial commissure.
   b. Maxillary vestibule.
   c. Mandibular vestibule.
   d. Pterygomandibular raphe.

20. Ectopic sebaceous glands that are often found on the internal surface of the cheek are called
   a. rugae.
   b. papilla.
   c. palatal glands.
   d. Fordyce's spots.

21. A patient with all permanent teeth has which dentition?
   a. Primary.
   b. Mixed.
   c. Deciduous.
   d. Secondary.

22. How many incisors are present in the primary dentition?
   a. 2.
   b. 8.
   c. 20.
   d. 32.

23. Which is the total amount of deciduous teeth?
- a. 4.
- b. 8.
- c. 20.
- d. 32.

24. The secondary dentition is composed of how many teeth?
- a. 20.
- b. 30.
- c. 32.
- d. 34.

25. Which is the first permanent tooth to erupt?
- a. Maxillary 1st molar.
- b. Mandibular 1st molar.
- c. Maxillary central incisor.
- d. Mandibular central incisor.

26. The tooth surface farthest from the midline of the dental arch is
- a. distal.
- b. mesial.
- c. lingual.
- d. occlusal.

27. Permanent maxillary central incisors usually erupt at which age?
- a. 7 years.
- b. 8 years.
- c. 8–10 months.
- d. 15–21 months.

28. Which part of the tooth is exposed within the oral cavity?
- a. Clinical root.
- b. Clinical crown.
- c. Anatomic root.
- d. Anatomic crown.

29. Which is also called the cementoenamel junction?
- a. Cingulum.
- b. Root apex.
- c. Pulp cavity.
- d. Cervical line.

30. Which is the longest tooth?
- a. Maxillary canine.
- b. Mandibular 2nd molar.
- c. Mandibular 1st premolar.
- d. Maxillary central incisor.

31. Which maxillary tooth usually has two roots?
  a. Canine.
  b. 1st molar.
  c. 1st premolar.
  d. 2nd premolar.

32. Which mandibular tooth has 5 cusps?
  a. 1st molar.
  b. 2nd molar.
  c. 3rd molar.
  d. 2nd premolar.

33. Which branch of the maxillary artery supplies the mandibular arch?
  a. Lesser palatine.
  b. Sphenopalatine.
  c. Inferior alveolar.
  d. Posterior superior alveolar.

34. Which artery supplies the submandibular salivary gland?
  a. Facial.
  b. Lingual.
  c. Ascending pharyngeal.
  d. Ascending palatine.

35. Which vein of the oral cavity does NOT drain into the pterygoid plexus of veins?
  a. Submental.
  b. Greater palatine.
  c. Inferior alveolar.
  d. Anterior superior alveolar.

36. Sensory innervation to the oral cavity is from the mandibular division of the trigeminal nerve and which other nerve?
  a. Optic.
  b. Hypoglossal.
  c. Maxillary division of the trigeminal.
  d. Ophthalmic division of the trigeminal.

37. Which nerve supplies the anterior teeth of the maxillary arch?
  a. Inferior alveolar.
  b. Middle superior alveolar.
  c. Anterior superior alveolar.
  d. Posterior superior alveolar.

38. Which nerve supplies the facial gingiva and mucosa of the anterior mandibular teeth?
  a. Mental.
  b. Lingual.
  c. Incisive.
  d. Inferior alveolar.

39. Which is NOT a major salivary gland?
   a. Parotid.
   b. Vestibular.
   c. Sublingual.
   d. Submandibular.

40. The parotid gland empties into the oral cavity through which duct?
   a. Stensen.
   b. Wharton.
   c. Barthonin.
   d. Rivinus.

Feedback

1. ANS: b
   a. The teeth, not the lips, divide the vestibule from the oral cavity proper.
   b. **Correct.** The teeth are the division between the vestibule and the oral cavity proper.
   c. The teeth, not the cheeks, divide the vestibule from the oral cavity proper.
   d. The teeth, not the tongue, divide the vestibule from the oral cavity proper.

   REF: p. 326

2. ANS: d
   a. The upper and lower lips meet at the labial commissures, not the philtrum.
   b. The upper and lower lips meet at the labial commissures, not the frenulum.
   c. The upper and lower lips meet at the labial commissures, not the vestibule.
   d. **Correct.** The upper and lower lips meet at the labial commissures.

   REF: p. 327

3. ANS: c
   a. The vermilion zone, not the philtrum, is also called the “red zone.”
   b. The vermilion zone, not the vestibule, is also called the “red zone.”
   c. **Correct.** The vermilion zone is also called the “red zone,” and is the area of the lip that is red in color.
   d. The vermilion zone, not the vermilion border, is also called the “red zone.” The vermilion border is the line between the lips and the skin.

   REF: p. 327

4. ANS: b
   a. The buccinator muscle forms the muscular “skeleton” of the cheeks, not the lips. The muscular “skeleton” of the lips is the orbicularis oris muscle.
   b. **Correct.** The buccinator muscle forms the muscular “skeleton” of the cheeks.
   c. The buccinator muscle forms the muscular “skeleton” of the cheeks, not the frenula.
   d. The buccinator muscle forms the muscular “skeleton” of the cheeks, not the mucolabial fold.

   REF: p. 327

5. ANS: d

a. Nonkeratinized stratified squamous epithelium lines the cheeks, not simple cuboidal epithelium.
b. Nonkeratinized stratified squamous epithelium lines the cheeks, not simple squamous epithelium.
c. Nonkeratinized stratified squamous epithelium lines the cheeks, not stratified cuboidal epithelium.
d. **Correct.** Nonkeratinized stratified squamous epithelium lines the cheeks, as well as all the mucous membrane of the oral cavity.

REF: p. 327

6. ANS: d

a. The inferior alveolar artery, not the facial artery, is the immediate source of the mental artery.
b. The inferior alveolar artery, not the maxillary artery, is the immediate source of the mental artery.
c. The inferior alveolar artery, not the infraorbital artery, is the immediate source of the mental artery.
d. **Correct.** The inferior alveolar artery is the immediate source of the mental artery.

REF: p. 328

7. ANS: d

a. The mental artery supplies the chin, not the upper lip.
b. The buccal artery supplies the cheek, not the upper lip.
c. The inferior labial branch of the facial artery supplies the lower, not upper, lip.
d. **Correct.** The superior labial branches of the infraorbital and facial arteries supply the upper lip.

REF: p. 328

8. ANS: b

a. The cheek is drained by the buccal vein, not the mental vein.
b. **Correct.** The cheek is drained by the buccal vein.
c. The cheek is drained by the buccal vein, not the inferior labial branch of the facial vein.
d. The cheek is drained by the buccal vein, not the superior labial branch of the facial vein.

REF: p. 329

9. ANS: a

a. **Correct.** The mental vein drains both the lower lip and the chin.
b. The mental vein drains both the lower lip and the chin; the buccal vein drains only the cheek.
c. The mental vein drains both the lower lip and the chin; the inferior labial branch of the facial vein drains only the lower lip.
d. The mental vein drains both the lower lip and the chin; the superior labial branch of the facial vein drains only the upper lip.

REF: p. 329

10. ANS: a
   a. **Correct.** The facial nerve is responsible for motor innervation to the muscles of facial expression.
   b. The facial nerve, not the trochlear nerve, is responsible for motor innervation to the muscles of facial expression.
   c. The facial nerve, not the abducens nerve, is responsible for motor innervation to the muscles of facial expression.
   d. The facial nerve, not the trigeminal nerve, is responsible for motor innervation to the muscles of facial expression.

REF: p. 330

11. ANS: c
   a. The skin of the lips, chin and cheeks are supplied with sensory innervation from the trigeminal nerve, not the facial nerve.
   b. The skin of the lips, chin and cheeks are supplied with sensory innervation from the trigeminal nerve, not the trochlear nerve.
   c. **Correct.** The trigeminal nerve supplies the skin of the lips, chin and cheeks with sensory innervation.
   d. The skin of the lips, chin and cheeks are supplied with sensory innervation from the trigeminal nerve, not the glossopharyngeal nerve.

REF: p. 331

12. ANS: c
   a. The buccal branch of the mandibular division of the trigeminal nerve, not the mental nerve, innervates mandibular molar gingiva.
   b. The buccal branch of the mandibular division of the trigeminal nerve, not the inferior alveolar nerve, innervates mandibular molar gingiva.
   c. **Correct.** The buccal branch of the mandibular division of the trigeminal nerve innervates the gingiva along the mandibular molars, as well as the skin over the buccinator muscle and the mucous membrane of the inner cheek.
   d. The buccal branch of the mandibular division of the trigeminal nerve, not the superior labial branch of the infraorbital nerve, innervates mandibular molar gingiva.

REF: p. 331

13. ANS: c
   a. The hard palate forms the superior border, not the lateral border, of the oral cavity.
   b. The hard palate forms the superior border, not the inferior border, of the oral cavity.
   c. **Correct.** The hard palate forms the superior border of the oral cavity.
   d. The hard palate forms the superior border, not the posterosuperior border, of the oral cavity.

REF: p. 332

14. ANS: b
a. The incisive foramen, not the mental foramen, is located in the anterior midline of the hard palate. The mental foramen is located within the mandible.
b. **Correct.** The incisive foramen is located in the anterior midline of the hard palate.
c. The lesser palatine foramina are located in the posterolateral region of the hard palate, not the anterior midline.
d. The greater palatine foramina are located in the posterolateral region of the hard palate, not the anterior midline.

REF: p. 332

15. ANS: a
a. **Correct.** The palatine process of the maxilla forms the anterior portion of the hard palate.
b. The palatine process of the maxilla, not the palatine bone, forms the anterior region of the hard palate. The horizontal plate of the palatine bone forms the posterior portion of the hard palate.
c. The palatine process of the maxilla, not the sphenoid, forms the anterior portion of the hard palate.
d. The palatine process of the maxilla, not the mandible, forms the anterior portion of the hard palate.

REF: p. 332

16. ANS: b
a. The entire palate is composed of ⅓, not ¼, soft palate.
b. **Correct.** The entire palate is composed of ⅓ soft palate and ⅔ hard palate.
c. The entire palate is composed of ⅓, not ½, soft palate.
d. The entire palate is composed of ⅓, not ⅔, soft palate.

REF: pp. 332, 334

17. ANS: d
a. The palatopharyngeus muscle is a muscle of the soft palate.
b. The musculus uvulae muscle is a muscle of the soft palate.
c. The levator veli palatine muscle is a muscle of the soft palate.
d. **Correct.** The superior pharyngeal constrictor muscle is not a component of the soft palate.

REF: p. 334

18. ANS: b
a. The palatoglossus muscle elevates the tongue, not the uvula.
b. **Correct.** One of the actions of the palatoglossus muscle is to elevate the tongue.
c. The palatoglossus muscle elevates the tongue, not the pharynx.
d. The palatoglossus muscle elevates the tongue, not the soft palate.

REF: p. 335

19. ANS: c
- a. The mandibular vestibule, not the labial commissure, is the inferior boundary of the cheek.
- b. The maxillary vestibule forms the superior, not inferior, boundary of the cheek.
- c. **Correct.** The mandibular vestibule is the inferior boundary of the cheek.
- d. The mandibular vestibule, not the pterygomandibular raphe, is the inferior boundary of the cheek.

REF: p. 337

20. ANS: d
- a. Ectopic sebaceous glands found on the internal surface of the cheek are called Fordyce's spots, not rugae.
- b. Ectopic sebaceous glands found on the internal surface of the cheek are called Fordyce's spots, not papilla.
- c. Ectopic sebaceous glands found on the internal surface of the cheek are called Fordyce's spots, not palatal glands.
- d. **Correct.** Ectopic sebaceous glands found on the internal surface of the cheek are called Fordyce's spots.

REF: p. 337

21. ANS: d
- a. The primary dentition is composed of all "baby" or deciduous teeth.
- b. The mixed dentition is composed of both deciduous and permanent teeth.
- c. The deciduous dentition is composed of all "baby" or primary teeth.
- d. **Correct.** The secondary dentition is composed of all permanent teeth.

REF: p. 341

22. ANS: b
- a. There are a total of 8 incisors present in the primary dentition, not 2.
- b. **Correct.** There are 2 incisors present per quadrant, totaling 8 incisors present in the primary dentition.
- c. There are a total of 8 incisors present in the primary dentition, not 20.
- d. There are a total of 8 incisors present in the primary dentition, not 32.

REF: p. 341

23. ANS: c
- a. There a total of 20, not 4, deciduous teeth in the primary dentition.
- b. There a total of 20, not 8, deciduous teeth in the primary dentition.
- c. **Correct.** There are a total of 20 deciduous teeth in the primary dentition.
- d. There a total of 20, not 32, deciduous teeth in the primary dentition.

REF: p. 341

24. ANS: c

a. There are 32 teeth, not 20, in the secondary dentition.
b. There are 32 teeth, not 30, in the secondary dentition.
c. **Correct.** There are 32 teeth in the secondary dentition.
d. There are 32 teeth, not 34, in the secondary dentition.

REF: p. 341

25. ANS: b

a. The mandibular 1st molar, not the maxillary 1st molar, is usually the first permanent tooth to erupt.
b. **Correct.** The mandibular 1st molar is usually the first permanent tooth to erupt.
c. The mandibular 1st molar, not the maxillary central incisor, is usually the first permanent tooth to erupt.
d. The mandibular 1st molar, not the mandibular central incisor, is usually the first permanent tooth to erupt.

REF: p. 341

26. ANS: a

a. **Correct.** The distal surface of a tooth is the surface that is farthest away from the midline of the dental arch.
b. The distal, not mesial, surface of a tooth is the surface that is farthest away from the midline of the dental arch.
c. The distal, not lingual, surface of a tooth is the surface that is farthest away from the midline of the dental arch.
d. The distal, not occlusal, surface of a tooth is the surface that is farthest away from the midline of the dental arch.

REF: p. 341

27. ANS: a

a. **Correct.** Maxillary central incisors usually erupt when a child is 7 years old.
b. Maxillary central incisors usually erupt when a child is 7, not 8, years old.
c. The usual age of eruption for a permanent maxillary central incisor is 7 years, not 8–10 months.
d. The usual age of eruption for a permanent maxillary central incisor is 7 years, not 15–21 months.

REF: p. 342

28. ANS: b

a. The portion of tooth within the bone, protected from the oral cavity, is called the clinical root.
b. **Correct.** The clinical crown is exposed, and can be seen, within the oral cavity.
c. The anatomic root is covered with cementum, and embedded in the bone.
d. The anatomic crown is the portion of tooth covered with enamel. In the presence of gingival swelling or hyperplasia, the entirety of the anatomic crown (enamel surface) may not be exposed within the oral cavity. The clinical crown is the portion of tooth exposed within the oral cavity.

REF: p. 342

29. ANS: d

a. The cervical line, not the cingulum, is also called the cementoenamel junction.
b. The cervical line, not the root apex, is also called the cementoenamel junction.
c. The cervical line, not the pulp cavity, is also called the cementoenamel junction.
d. **Correct.** The cervical line is also called the cementoenamel junction and is the location of the separation between the crown and root of a tooth.

REF: p. 342

30. ANS: a

a. **Correct.** The maxillary canine is the longest tooth in the mouth.
b. The canine, not the mandibular 2nd molar, is the longest tooth in the mouth.
c. The canine, not the mandibular 1st premolar, is the longest tooth in the mouth.
d. The canine, not the maxillary central incisor, is the longest tooth in the mouth.

REF: p. 344

31. ANS: c

a. The maxillary 1st premolar usually has 2 roots. The canine usually has 1 root.
b. The maxillary 1st premolar usually has 2 roots. The maxillary 1st molar usually has 3 roots.
c. **Correct.** The maxillary 1st premolar usually has 2 roots.
d. The maxillary 1st premolar usually has 2 roots. The 2nd premolar usually has 1 root.

REF: p. 346

32. ANS: a

a. **Correct.** The mandibular 1st molar has 5 cusps.
b. The mandibular 2nd molar has 4, not 5, cusps.
c. The mandibular 3rd molar has 4, not 5, cusps.
d. The mandibular 2nd premolar has either 2 or 3 cusps, not 5.

REF: p. 351

33. ANS: c

a. The inferior alveolar branch of the maxillary artery, not the lesser palatine, supplies the mandibular arch.
b. The inferior alveolar branch of the maxillary artery, not the sphenopalatine, supplies the mandibular arch.
c. **Correct.** The inferior alveolar branch of the maxillary artery supplies the mandibular arch.
d. The inferior alveolar branch of the maxillary artery, not the posterior superior alveolar, supplies the mandibular arch.

REF: p. 352

34. ANS: a

a. **Correct.** The facial artery supplies the submandibular salivary gland.
b. The facial artery, not the lingual artery, supplies the submandibular salivary gland.
c. The facial artery, not the ascending pharyngeal artery, supplies the submandibular salivary gland.
d. The facial artery, not the ascending palatine artery, supplies the submandibular salivary gland.

REF: p. 352

35. ANS: a

a. **Correct.** The submental vein does not drain into the pterygoid plexus of veins, but ends in the facial vein.
b. The greater palatine vein drains into the pterygoid plexus of veins.
c. The inferior alveolar vein drains into the pterygoid plexus of veins.
d. The anterior superior alveolar vein drains into the pterygoid plexus of veins.

REF: p. 356

36. ANS: c

a. The maxillary division of the trigeminal nerve, not the optic nerve, supplies the oral cavity with sensory innervation.
b. The maxillary division of the trigeminal nerve, not the hypoglossal nerve, supplies the oral cavity with sensory innervation.
c. **Correct.** The maxillary division and the mandibular division of the trigeminal nerve supply the oral cavity with sensory innervation.
d. The maxillary division of the trigeminal nerve, not the ophthalmic division, supplies the oral cavity with sensory innervation.

REF: p. 359

37. ANS: c

a. The anterior superior alveolar nerve, not the inferior alveolar, innervates the anterior teeth of the maxillary arch.
b. The anterior superior alveolar nerve, not the middle superior alveolar, innervates the anterior teeth of the maxillary arch.
c. **Correct.** The anterior superior alveolar nerve innervates the anterior teeth of the maxillary arch.
d. The anterior superior alveolar nerve, not the posterior superior alveolar, innervates the anterior teeth of the maxillary arch.

REF: p. 359

38. ANS: a

a. **Correct.** The mental nerve supplies the facial gingiva and mucosa of the mandibular teeth from the 2nd premolar to the central incisor.
b. The mental nerve, not the lingual, supplies the facial gingival and mucosa of the anterior mandibular teeth.
c. The mental nerve, not the incisive, supplies the facial gingival and mucosa of the anterior mandibular teeth.
d. The mental nerve, not the inferior alveolar, supplies the facial gingival and mucosa of the anterior mandibular teeth.

REF: p. 360

39. ANS: b

a. The parotid is a major salivary gland.
b. **Correct.** The vestibular is not a major salivary gland; however, many minor salivary glands are placed throughout the oral mucosa.
c. The sublingual is a major salivary gland.
d. The submandibular is a major salivary gland.

REF: p. 366

40. ANS: a

a. **Correct.** The parotid duct is also known as Stensen's duct, which drains the parotid gland into the oral cavity.
b. The parotid gland empties into the oral cavity through Stensen's duct, not Wharton's.
c. The parotid gland empties into the oral cavity through Stensen's duct, not Barthonin's duct.
d. The parotid gland empties into the oral cavity through Stensen's duct, not the duct of Rivinus.

REF: p. 367

CHAPTER 14

Tongue

Multiple Choice

1. Which is NOT a function of the tongue?
   a. Taste.
   b. Talking.
   c. Olfaction.
   d. Deglutition.

2. The tongue's ability to change shape is a function of which muscle type?
   a. Medial.
   b. Lateral.
   c. Intrinsic.
   d. Extrinsic.

3. The oral portion of the tongue is covered with which epithelial layer?
   a. Stratified cuboidal.
   b. Stratified columnar.
   c. Keratinized stratified squamous.
   d. Nonkeratinized stratified squamous.

4. Which papillae do NOT have taste buds?
   a. Foliate.
   b. Filiform.
   c. Fungiform.
   d. Circumvallate.

5. Which papillae are positioned in a row on the dorsal surface of the tongue?
   a. Foliate.
   b. Filiform.
   c. Fungiform.
   d. Circumvallate.

6. Which is the location of the plica fimbriata in relation to the lingual frenulum?
   a. Lateral.
   b. Inferior.
   c. Superior.
   d. Anterior.

7. Which is NOT an extrinsic muscle of the tongue?
  a. Hyoglossus.
  b. Genioglossus.
  c. Palatoglossus.
  d. Superior longitudinal.

8. Retracting the tongue is an action of which extrinsic tongue muscle?
  a. Hyoglossus.
  b. Styloglossus.
  c. Genioglossus.
  d. Palatoglossus.

9. Which tongue muscle originates from the greater and lesser cornu, and body of the hyoid?
  a. Hyoglossus.
  b. Styloglossus.
  c. Genioglossus.
  d. Palatoglossus.

10. Which extrinsic tongue muscle is NOT innervated by the hypoglossal nerve?
  a. Hyoglossus.
  b. Styloglossus.
  c. Genioglossus.
  d. Palatoglossus.

11. Which extrinsic tongue muscle mixes with intrinsic muscle at the insertion?
  a. Hyoglossus.
  b. Styloglossus.
  c. Genioglossus.
  d. Palatoglossus.

12. Which is NOT an intrinsic muscle of the tongue?
  a. Vertical.
  b. Transverse.
  c. Palatoglossus.
  d. Inferior longitudinal.

13. Which intrinsic tongue muscle broadens the tongue?
  a. Vertical.
  b. Transverse.
  c. Inferior longitudinal.
  d. Superior longitudinal.

14. Which intrinsic tongue muscle spans the width of the tongue?
  a. Vertical.
  b. Transverse.
  c. Inferior longitudinal.
  d. Superior longitudinal.

15. The anterior ⅔ of the tongue, mandibular lingual gingiva and mucosa of the oral cavity floor are all innervated with GSA fibers from which nerve?
   a. Lingual.
   b. Chorda tympani.
   c. Internal laryngeal.
   d. Glossopharyngeal.

16. Which nerve supplies the posterior ⅓ of the tongue with SVA fibers?
   a. Lingual.
   b. Chorda tympani.
   c. Internal laryngeal.
   d. Glossopharyngeal.

17. Which cranial nerve is the source of the internal laryngeal nerve?
   a. Vagus.
   b. Facial.
   c. Trigeminal.
   d. Glossopharyngeal.

18. Which nerve supplies SVA fibers to taste buds on the tongue at the epiglottic region?
   a. Lingual.
   b. Chorda tympani.
   c. Internal laryngeal.
   d. Glossopharyngeal.

19. Which nerve is NOT involved in sensory innervation to the taste buds?
   a. Chorda tympani.
   b. Internal laryngeal.
   c. Glossopharyngeal.
   d. Hypoglossal.

20. Which nerve supplies motor innervation to all intrinsic tongue muscles?
   a. Hypoglossal.
   b. Chorda tympani.
   c. Pharyngeal plexus.
   d. Pharyngeal branch of the vagus.

21. Which artery supplies the sublingual gland?
   a. Lingual.
   b. Submental.
   c. Sublingual.
   d. Deep lingual.

22. The lingual vein receives tributaries from the deep lingual vein drains on which area of the tongue?
   a. Dorsal.
   b. Ventral.
   c. Anterior.
   d. Posterior.

23. The submental vein joins which vein?
  a. Facial.
  b. Lingual.
  c. Inferior alveolar.
  d. Superficial temporal.

24. Which is NOT a clinical presentation of ankyloglossia?
  a. Appearance of bilobed tongue.
  b. Limited protrusion of the tongue.
  c. Appearance of geographic tongue.
  d. Limited elevation of the tip of the tongue.

25. Movement of the tongue within the oral cavity is a function of which muscle type?
  a. Medial.
  b. Lateral.
  c. Intrinsic.
  d. Extrinsic.

26. Which type of papillae is most numerous on the anterior ⅔ of the tongue?
  a. Foliate.
  b. Filiform.
  c. Fungiform.
  d. Circumvallate.

27. The thyroid gland initially develops at which site?
  a. Lingual tonsils.
  b. Foramen cecum.
  c. Sulcus terminalis.
  d. Glossoepiglottic folds.

28. The anterior pillars of fauces are also known as the
  a. lingual tonsils.
  b. sulcus terminalis.
  c. palatoglossal arches.
  d. glossoepiglottic folds.

29. A frenectomy may be performed as treatment for which condition?
  a. Hairy tongue.
  b. Ankyloglossia.
  c. Fissured tongue.
  d. Geographic tongue.

30. Which type of epithelium covers the pharyngeal portion of the tongue?
  a. Stratified cuboidal.
  b. Stratified columnar.
  c. Keratinized stratified squamous.
  d. Nonkeratinized stratified squamous.

31. The smallest extrinsic tongue muscle is the
   a. Hyoglossus.
   b. Styloglossus.
   c. Genioglossus.
   d. Palatoglossus.

32. Protracting the tongue is an action of which extrinsic tongue muscle?
   a. Hyoglossus.
   b. Styloglossus.
   c. Genioglossus.
   d. Palatoglossus.

33. The submucosa at the apex of the tongue is the insertion for which intrinsic tongue muscle?
   a. Vertical.
   b. Transverse.
   c. Inferior longitudinal.
   d. Superior longitudinal.

34. Which intrinsic tongue muscle curls the tongue's apex upward?
   a. Vertical.
   b. Transverse.
   c. Inferior longitudinal.
   d. Superior longitudinal.

Feedback

1. ANS: c
   a. Taste is a function of the tongue.
   b. Talking is a function of the tongue.
   c. **Correct.** Olfaction is a function of the nose, not the tongue.
   d. Deglutition is a function of the tongue.

   REF: p. 380

2. ANS: c
   a. Intrinsic, not medial, muscles of the tongue are responsible for changing the tongue's shape.
   b. Intrinsic, not lateral, muscles of the tongue are responsible for changing the tongue's shape.
   c. **Correct.** Intrinsic muscles of the tongue are responsible for changing the tongue's shape.
   d. Intrinsic, not extrinsic, muscles of the tongue are responsible for changing the tongue's shape.

   REF: p. 380

3. ANS: c

a. The oral portion of the tongue is covered with keratinized stratified squamous epithelium, not stratified cuboidal epithelium.
b. The oral portion of the tongue is covered with keratinized stratified squamous epithelium, not stratified columnar epithelium.
c. **Correct.** The oral portion of the tongue is covered with keratinized stratified squamous epithelium.
d. The oral portion of the tongue is covered with keratinized, not nonkeratinized, stratified squamous epithelium.

REF: p. 382

4. ANS: b

a. Foliate papillae have taste buds.
b. **Correct.** The filiform papillae lack taste buds.
c. Fungiform papillae have taste buds.
d. Circumvallate papillae have taste buds.

REF: p. 382

5. ANS: d

a. The foliate papillae are not positioned in a row on the surface of the tongue.
b. The filiform papillae are not positioned in a row on the surface of the tongue.
c. The fungiform papillae are not positioned in a row, but are scattered along the tongue's surface.
d. **Correct.** The circumvallate papillae are positioned in a row anterior to the sulcus terminalis on the dorsal surface of the tongue.

REF: p. 383

6. ANS: a

a. **Correct.** The plica fimbriata is located lateral to the lingual frenulum.
b. The plica fimbriata is located lateral, not inferior, to the lingual frenulum.
c. The plica fimbriata is located lateral, not superior, to the lingual frenulum.
d. The plica fimbriata is located lateral, not anterior, to the lingual frenulum.

REF: p. 384

7. ANS: d

a. The hyoglossus is an extrinsic muscle of the tongue.
b. The genioglossus is an extrinsic muscle of the tongue.
c. The palatoglossus is an extrinsic muscle of the tongue.
d. **Correct.** The superior longitudinal muscle is an intrinsic, not extrinsic, tongue muscle.

REF: p. 386

8. ANS: b

a. The hyoglossus depresses, not retracts, the tongue.
b. **Correct.** The styloglossus retracts the tongue, as well as elevates it.
c. The genioglossus protracts, not retracts, the tongue.
d. The palatoglossus elevates, not retracts, the tongue.

REF: p. 385

9. ANS: a

a. **Correct.** The hyoglossus muscle originates from the greater and lesser cornu and the body of the hyoid.
b. The styloglossus muscle originates from the styloid process, not the cornu and hyoid.
c. The genioglossus muscle originates from the superior genial tubercle of the mandible, not the cornu and hyoid.
d. The palatoglossus muscle originates from the palatine aponeurosis, not the cornu and hyoid.

REF: p. 385

10. ANS: d

a. The hyoglossus muscle is innervated by the hypoglossal nerve.
b. The styloglossus muscle is innervated by the hypoglossal nerve.
c. The genioglossus muscle is innervated by the hypoglossal nerve.
d. **Correct.** The palatoglossus muscle is innervated by the pharyngeal plexus, not the hypoglossal nerve.

REF: p. 385

11. ANS: d

a. The hyoglossus muscle mixes with the styloglossus muscle, not intrinsic muscle, at the insertion.
b. The styloglossus muscle mixes with the hyoglossus muscle, not intrinsic muscle, at the insertion.
c. The genioglossus muscle does not mix with intrinsic muscle at the insertion.
d. **Correct.** The palatoglossus muscle mixes with intrinsic muscle at the insertion along the side of the tongue.

REF: p. 385

12. ANS: c

a. The vertical is one of the intrinsic tongue muscles.
b. The transverse is one of the intrinsic tongue muscles.
c. **Correct.** The palatoglossus is an extrinsic, not intrinsic, muscle of the tongue.
d. The inferior longitudinal is one of the intrinsic tongue muscles.

REF: p. 385

13. ANS: a

a. **Correct.** The vertical muscle broadens, as well as flattens the tongue.
b. The transverse muscle narrows and lengthens the tongue, not broadens it.
c. The inferior longitudinal muscle shortens, not broadens, the tongue.
d. The superior longitudinal muscle shortens, not broadens, the tongue.

REF: p. 386

14. ANS: b

a. The vertical muscle goes from superior to inferior tongue surface, not across the width of the tongue.
b. **Correct.** The transverse muscle spans the width of the tongue.
c. The inferior longitudinal muscle runs the length, not the width, of the tongue.
d. The superior longitudinal muscle runs the length, not the width, of the tongue.

REF: p. 386

15. ANS: a

a. **Correct.** The lingual nerve supplies GSA fibers to the anterior ⅔ of the tongue as well as mandibular lingual mucosa and gingiva.
b. The lingual nerve, not the chorda tympani, supplies GSA fibers to the anterior ⅔ of the tongue as well as mandibular lingual mucosa and gingiva. The chorda tympani supplies SVA fibers.
c. The lingual nerve, not the internal laryngeal nerve, supplies GSA fibers to the anterior ⅔ of the tongue as well as mandibular lingual mucosa and gingiva.
d. The lingual nerve, not the glossopharyngeal nerve, supplies GSA fibers to the anterior ⅔ of the tongue as well as mandibular lingual mucosa and gingiva.

REF: p. 388

16. ANS: d

a. The glossopharyngeal nerve, not the lingual, supplies the posterior ⅓ of the tongue with SVA fibers.
b. The glossopharyngeal nerve, not the chorda tympani, supplies the posterior ⅓ of the tongue with SVA fibers.
c. The glossopharyngeal nerve, not the internal laryngeal, supplies the posterior ⅓ of the tongue with SVA fibers.
d. **Correct.** The glossopharyngeal nerve supplies GSA fibers to the epithelium of the posterior ⅓ of the tongue, and SVA fibers to taste buds in this same area.

REF: p. 388

17. ANS: a

a. **Correct.** The vagus nerve is the source of the internal laryngeal nerve.
b. The vagus cranial nerve, not the facial, is the source of the internal laryngeal nerve.
c. The vagus cranial nerve, not the trigeminal, is the source of the internal laryngeal nerve.
d. The vagus cranial nerve, not the glossopharyngeal, is the source of the internal laryngeal nerve.

REF: p. 388

18. ANS: c
- a. The internal laryngeal nerve, not the lingual, supplies SVA fibers to the taste buds on the tongue at the epiglottic region.
- b. The internal laryngeal nerve, not the chorda tympani, supplies SVA fibers to the taste buds on the tongue at the epiglottic region.
- c. **Correct.** The internal laryngeal nerve supplies SVA fibers to the taste buds on the tongue at the epiglottic region, as well as GSA fibers to the same area.
- d. The internal laryngeal nerve, not the glossopharyngeal, supplies SVA fibers to the taste buds on the tongue at the epiglottic region.

REF: p. 388

19. ANS: d
- a. The chorda tympani nerve supplies sensory SVA innervation to the taste buds of the tongue.
- b. The internal laryngeal nerve supplies SVA innervation to the taste buds of the tongue.
- c. The glossopharyngeal nerve supplies SVA innervation to the taste buds of the tongue.
- d. **Correct.** The hypoglossal supplies motor innervation, not SVA innervation, to the tongue.

REF: p. 392

20. ANS: a
- a. **Correct.** The hypoglossal nerve innervates all the intrinsic muscles of the tongue.
- b. The hypoglossal, not the chorda tympani, supplies motor innervation to all the intrinsic tongue muscles.
- c. The hypoglossal, not the pharyngeal plexus, supplies motor innervation to all the intrinsic tongue muscles.
- d. The hypoglossal, not the pharyngeal branch of the vagus, supplies motor innervation to all the intrinsic tongue muscles.

REF: p. 392

21. ANS: c
- a. The sublingual artery, not the lingual, supplies the sublingual gland.
- b. The sublingual artery, not the submental, supplies the sublingual gland.
- c. **Correct.** The sublingual branch of the lingual artery directly supplies the sublingual gland and the muscles of that area.
- d. The sublingual artery, not the deep lingual, supplies the sublingual gland.

REF: p. 394

22. ANS: b
- a. The lingual vein receives tributaries from the deep lingual vein on the ventral surface, not the dorsal, surface of the tongue.
- b. **Correct.** The lingual vein receives tributaries from the deep lingual vein on the ventral surface of the tongue.
- c. The lingual vein receives tributaries from the deep lingual vein on the ventral, not the anterior, surface of the tongue.
- d. The lingual vein receives tributaries from the deep lingual vein on the ventral, not the posterior, surface of the tongue.

REF: p. 396

23. ANS: a

a. **Correct.** The submental vein joins the facial vein.
b. The submental vein joins the facial vein, not the lingual.
c. The submental vein joins the facial vein, not the inferior alveolar.
d. The submental vein joins the facial vein, not the superficial temporal.

REF: p. 396

24. ANS: c

a. The appearance of a bilobed tongue is a clinical presentation of ankyloglossia.
b. Limited protrusion of the tongue is a clinical presentation of ankyloglossia.
c. **Correct.** The appearance of geographic tongue is not a clinical presentation of ankyloglossia.
d. Limited elevation of the tongue is a clinical presentation of ankyloglossia.

REF: p. 397

25. ANS: d

a. Extrinsic tongue muscles, not medial, are responsible for movement of the tongue within the oral cavity.
b. Extrinsic tongue muscles, not lateral, are responsible for movement of the tongue within the oral cavity.
c. Extrinsic tongue muscles, not intrinsic, are responsible for movement of the tongue within the oral cavity.
d. **Correct.** Extrinsic tongue muscles are responsible for movement of the tongue within the oral cavity.

REF: p. 380

26. ANS: b

a. Filiform papillae, not foliate, are the most numerous on the oral portion of the tongue.
b. **Correct.** Filiform papillae are the most numerous papillae on the anterior ⅔ of the tongue.
c. Filiform papillae, not fungiform, are the most numerous on the oral portion of the tongue.
d. Filiform papillae, not circumvallate, are the most numerous papillae on the oral portion of the tongue.

REF: p. 382

27. ANS: b

a. The foramen cecum, not the lingual tonsils, is the initial development site of the thyroid gland.
b. **Correct.** The foramen cecum is the initial development site of the thyroid gland.
c. The foramen cecum, not the sulcus terminalis, is the initial development site of the thyroid gland.
d. The foramen cecum, not the glossoepiglottic folds, is the initial development site of the thyroid gland.

REF: p. 382

28. ANS: c
   a. The palatoglossal arches, not the lingual tonsils, are also known as the anterior pillars of fauces.
   b. The palatoglossal arches, not the sulcus terminalis, are also known as the anterior pillars of fauces.
   c. **Correct.** The palatoglossal arches are also known as the anterior pillars of fauces.
   d. The palatoglossal arches, not the glossoepiglottic folds, are also known as the anterior pillars of fauces.

   REF: p. 382

29. ANS: b
   a. Frenectomy is a treatment for ankyloglossia, not hairy tongue.
   b. **Correct.** Frenectomy is a treatment for ankyloglossia.
   c. Frenectomy is a treatment for ankyloglossia, not fissured tongue.
   d. Frenectomy is a treatment for ankyloglossia, not geographic tongue.

   REF: p. 397

30. ANS: d
   a. The pharyngeal portion of the tongue is covered with nonkeratinized stratified squamous epithelium, not stratified cuboidal epithelium.
   b. The pharyngeal portion of the tongue is covered with nonkeratinized stratified squamous epithelium, not stratified columnar epithelium.
   c. The pharyngeal portion of the tongue is covered with nonkeratinized stratified squamous epithelium, not keratinized stratified epithelium.
   d. **Correct.** The pharyngeal portion of the tongue is covered with nonkeratinized stratified squamous epithelium.

   REF: p. 382

31. ANS: b
   a. The styloglossus is the smallest of the extrinsic tongue muscles, not the hyoglossus.
   b. **Correct.** The styloglossus is the smallest of the extrinsic tongue muscles.
   c. The styloglossus is the smallest of the extrinsic tongue muscles, not the genioglossus.
   d. The styloglossus is the smallest of the extrinsic tongue muscles, not the palatoglossus.

   REF: p. 385

32. ANS: c
   a. Protracting the tongue is an action of the genioglossus, not the hyoglossus tongue muscle.
   b. Protracting the tongue is an action of the genioglossus, not the styloglossus tongue muscle.
   c. **Correct.** Protracting the tongue is an action of the genioglossus extrinsic tongue muscle.
   d. Protracting the tongue is an action of the genioglossus, not the palatoglossus tongue muscle.

   REF: p. 385

33. ANS: c

a. The insertion of the inferior longitudinal tongue muscle, not the vertical tongue muscle, is the submucosa at the apex of the tongue.
b. The insertion of the inferior longitudinal tongue muscle, not the transverse tongue muscle, is the submucosa at the apex of the tongue.
c. **Correct.** The insertion of the inferior longitudinal tongue muscle is the submucosa at the apex of the tongue.
d. The insertion of the inferior longitudinal tongue muscle, not the superior longitudinal tongue muscle, is the submucosa at the apex of the tongue.

REF: p. 386

34. ANS: d

a. An action of the superior longitudinal tongue muscle, not the vertical tongue muscle, is curling the tongue's apex upward.
b. An action of the superior longitudinal tongue muscle, not the transverse tongue muscle, is curling the tongue's apex upward.
c. An action of the superior longitudinal tongue muscle, not the inferior longitudinal muscle, is curling the tongue's apex upward.
d. **Correct.** An action of the superior longitudinal tongue muscle is curling the tongue's apex upward.

REF: p. 386

CHAPTER 15

Pharynx

Multiple Choice

1. What is the length of the pharynx?
   a. 2 inches.
   b. 5 inches.
   c. 8 inches.
   d. 9 inches.

2. What is the lower extent of the pharynx?
   a. Lower border of thyroid cartilage.
   b. Lower border of cricoid cartilage.
   c. Upper border of thyroid cartilage.
   d. Upper border of cricoid cartilage.

3. How many constrictor and longitudinal muscles constitute the pharynx?
   a. Three constrictor and three longitudinal.
   b. Three constrictor and two longitudinal.
   c. Two constrictor and three longitudinal.
   d. Four constrictor and three longitudinal.

4. Which is the innermost layer of the pharyngeal wall?
   a. Buccopharyngeal fascia.
   b. Muscular layer.
   c. Pharyngobasilar fascia.
   d. Mucous membrane.

5. Which layer of pharyngeal wall is the site of location of the pharyngeal plexus of nerves and pharyngeal plexus of veins?
   a. Mucous membrane.
   b. Submucosa.
   c. Pharyngobasilar fascia.
   d. Buccopharyngeal fascia.

6. Which is the anterior boundary of the nasopharynx?
   a. Fornix.
   b. Soft palate.
   c. Choanae of nasal cavity.
   d. Mucosa covering the superior constrictor.

7. Which tonsils are located in the pharyngeal recess?
a. Lingual tonsils.
b. Tubal tonsils.
c. Pharyngeal tonsils.
d. Palatine tonsils.

8. The auditory tube connects the middle ear cavity with which structure?
a. Oropharynx.
b. Nasopharynx.
c. Laryngopharynx.
d. Larynx.

9. Which is the inferior boundary of the oropharynx?
a. Palatoglossal folds.
b. Posterior one third of tongue.
c. Nasopharynx.
d. Mucosa covering middle and inferior constrictors.

10. Which is the anterior boundary of the laryngopharynx?
a. Oropharynx.
b. Larynx and epiglottis.
c. Mucosa covering middle and inferior constrictors.
d. Mucosa covering superior and middle constrictors.

11. What is the name of the depression immediately posterior to the root of the tongue?
a. Piriform recess.
b. Epiglottic vallecula.
c. Pharyngeal recess.
d. Torus tubarius.

12. Which is the potential site for objects to become lodged?
a. Piriform recess.
b. Epiglottic vallecula.
c. Pharyngeal recess.
d. Torus tubarius.

13. Which muscle takes origin from the stylohyoid ligament and lesser cornu of hyoid?
a. Superior constrictor.
b. Middle constrictor.
c. Stylopharyngeus.
d. Palatopharyngeus.

14. Which muscle takes origin from the cartilage of the auditory tube?
a. Superior constrictor.
b. Middle constrictor.
c. Salpingopharyngeus.
d. Palatopharyngeus.

15. Which is the only muscle of the pharynx supplied by the glossopharyngeal nerve?
a. Superior constrictor.
b. Middle constrictor.
c. Salpingopharyngeus.
d. Stylopharyngeus.

16. Which of the following structures does not pass through the gap between base of skull and superior constrictor muscle?
a. Auditory tube.
b. Levator veli palatini.
c. Ascending palatine artery.
d. Tensor veli palatini.

17. Which of the following structures does not pass through the gap between superior and middle constrictor muscles?
a. Salpingopharyngeus.
b. Stylopharyngeus.
c. Glossopharyngeal nerve.
d. Stylohyoid ligament.

18. Which of the following structures does not pass through the gap between middle and inferior constrictor muscles?
a. Internal laryngeal nerve.
b. Superior laryngeal artery.
c. Superior laryngeal vein.
d. Recurrent laryngeal nerve.

19. Which artery ascends along the lateral side of pharynx typically between stylopharyngeus and styloglossus muscles?
a. Ascending pharyngeal.
b. Ascending palatine.
c. Tonsillar.
d. Pharyngeal.

20. Which nerve does not contribute to the formation of the pharyngeal plexus?
a. Pharyngeal branch of glossopharyngeal nerve.
b. Pharyngeal branch of vagus.
c. Cranial part of accessory nerve.
d. Recurrent laryngeal branch of the vagus.

Feedback

1. ANS: b
a. The length of the pharynx is 5 inches and not 2 inches.
b. **Correct.** The length of the pharynx is 5 inches.
c. The length of the pharynx is 5 inches and not 8 inches.
d. The length of the pharynx is 5 inches and not 9 inches.

REF: p. 402

2. ANS: b
   a. The lower extent of the pharynx is lower border of cricoid and not thyroid cartilage.
   b. **Correct.** The lower extent of the pharynx is lower border of cricoid cartilage.
   c. The lower extent of the pharynx is lower border of cricoid and not upper border of thyroid cartilage.
   d. The lower extent of the pharynx is lower border of cricoid and not upper border of cricoid cartilage.

   REF: p. 402

3. ANS: a
   a. **Correct.** Three constrictor and three longitudinal muscles constitute the pharynx.
   b. Three constrictor and three longitudinal muscles constitute the pharynx.
   c. Three constrictor and three longitudinal muscles constitute the pharynx.
   d. Three constrictor and three longitudinal muscles constitute the pharynx.

   REF: p. 402

4. ANS: d
   a. Buccopharyngeal fascia is not the innermost layer of the pharyngeal wall.
   b. Muscular layer is not the innermost layer of the pharyngeal wall.
   c. Pharyngobasilar fascia is not the innermost layer of the pharyngeal wall.
   d. **Correct.** Mucous membrane is the innermost layer of the pharyngeal wall.

   REF: p. 402

5. ANS: d
   a. Mucous membrane is not the site of location of the pharyngeal plexus of nerves and pharyngeal plexus of veins.
   b. Submucosa is not the site of location of the pharyngeal plexus of nerves and pharyngeal plexus of veins.
   c. Pharyngobasilar fascia is not the site of location of the pharyngeal plexus of nerves and pharyngeal plexus of veins.
   d. **Correct.** Buccopharyngeal fascia is the site of location of the pharyngeal plexus of nerves and pharyngeal plexus of veins.

   REF: p. 402

6. ANS: c
   a. Fornix forms the roof of nasopharynx.
   b. Soft palate forms floor of nasopharynx.
   c. **Correct.** Choanae of nasal cavity form the anterior boundary of the nasopharynx.
   d. Mucosa covering the superior constrictor forms the lateral boundary of nasopharynx.

   REF: p. 404

7. ANS: c

a. Lingual tonsils are located in relation to the tongue.
b. Tubal tonsils are located in relation to the auditory tube.
c. **Correct.** Pharyngeal tonsils are located in the pharyngeal recess.
d. Palatine tonsils are located in the tonsillar fauces.

REF: p. 404

8. ANS: b

a. The auditory tube connects the middle ear cavity with nasopharynx and not oropharynx.
b. **Correct.** The auditory tube connects the middle ear cavity with nasopharynx.
c. The auditory tube connects the middle ear cavity with nasopharynx and not laryngopharynx.
d. The auditory tube connects the middle ear cavity with nasopharynx and not larynx.

REF: p. 404

9. ANS: b

a. Palatoglossal folds form anterior boundary of oropharynx.
b. **Correct.** Posterior one third of tongue forms the inferior boundary of oropharynx.
c. Nasopharynx forms superior boundary of oropharynx.
d. Mucosa covering middle and inferior constrictors forms the lateral boundary of oropharynx.

REF: p. 404

10. ANS: b

a. Oropharynx forms the superior boundary of the laryngopharynx.
b. **Correct.** Larynx and epiglottis forms the anterior boundary of the laryngopharynx.
c. Mucosa covering middle and inferior constrictor muscles forms the posterior and lateral boundaries of the laryngopharynx.
d. Mucosa covering superior and middle constrictors does not form a boundary of the laryngopharynx.

REF: p. 404

11. ANS: b

a. Piriform recess is not the depression immediately posterior to the root of the tongue.
b. **Correct.** Epiglottic vallecula is the depression immediately posterior to the root of the tongue.
c. Pharyngeal recess is not the depression immediately posterior to the root of the tongue.
d. Torus tubarius is not the depression immediately posterior to the root of the tongue.

REF: p. 404

12. ANS: a

a. **Correct.** Piriform recess is the potential site for objects to become lodged.
b. Epiglottic vallecula is not the potential site for objects to become lodged.
c. Pharyngeal recess is not the potential site for objects to become lodged.
d. Torus tubarius is not the potential site for objects to become lodged.

REF: p. 404

13. ANS: b

a. Superior constrictor does not take origin from the stylohyoid ligament and lesser cornu of hyoid.
b. **Correct.** Middle constrictor takes origin from the stylohyoid ligament and lesser cornu of hyoid.
c. Stylopharyngeus does not take origin from the stylohyoid ligament and lesser cornu of hyoid.
d. Palatopharyngeus does not take origin from the stylohyoid ligament and lesser cornu of hyoid.

REF: p. 406

14. ANS: c

a. Superior constrictor does not take origin from the cartilage of the auditory tube.
b. Middle constrictor does not take origin from the cartilage of the auditory tube.
c. **Correct.** Salpingopharyngeus takes origin from the cartilage of the auditory tube.
d. Palatopharyngeus does not take origin from the cartilage of the auditory tube.

REF: p. 406

15. ANS: c

a. Salpingopharyngeus and not superior constrictor is supplied by the glossopharyngeal nerve.
b. Salpingopharyngeus and not middle constrictor is supplied by the glossopharyngeal nerve.
c. **Correct.** Salpingopharyngeus is supplied by the glossopharyngeal nerve.
d. Salpingopharyngeus and not stylopharyngeus is supplied by the glossopharyngeal nerve.

REF: p. 406

16. ANS: d

a. Auditory tube passes through the gap between base of skull and superior constrictor muscle.
b. Levator veli palatini passes through the gap between base of skull and superior constrictor muscle.
c. Ascending palatine artery passes through the gap between base of skull and superior constrictor muscle.
d. **Correct.** Tensor veli palatini does not pass through the gap between base of skull and superior constrictor muscle.

REF: p. 410

17. ANS: a
  a. **Correct.** Salpingopharyngeus does not pass through the gap between superior and middle constrictor muscles.
  b. Stylopharyngeus passes through the gap between superior and middle constrictor muscles.
  c. Glossopharyngeal nerve passes through the gap between superior and middle constrictor muscles.
  d. Stylohyoid ligament passes through the gap between superior and middle constrictor muscles.

REF: p. 410

18. ANS: d
  a. Internal laryngeal nerve passes through the gap between middle and inferior constrictor muscles.
  b. Superior laryngeal artery passes through the gap between middle and inferior constrictor muscles.
  c. Superior laryngeal vein passes through the gap between middle and inferior constrictor muscles.
  d. **Correct.** Recurrent laryngeal nerve does not pass through the gap between middle and inferior constrictor muscles.

REF: p. 410

19. ANS: b
  a. Ascending palatine and not ascending pharyngeal artery passes between stylopharyngeus and styloglossus muscles.
  b. **Correct.** Ascending palatine passes between stylopharyngeus and styloglossus muscles.
  c. Ascending palatine and not tonsillar artery passes between stylopharyngeus and styloglossus muscles.
  d. Ascending palatine and not pharyngeal artery passes between stylopharyngeus and styloglossus muscles.

REF: p. 411

20. ANS: d
  a. Pharyngeal branch of glossopharyngeal nerve contributes to the formation of the pharyngeal plexus.
  b. Pharyngeal branch of vagus contributes to the formation of the pharyngeal plexus.
  c. Cranial part of accessory nerve contributes to the formation of the pharyngeal plexus.
  d. **Correct.** Recurrent laryngeal branch of the vagus does not contribute to the formation of the pharyngeal plexus.

REF: p. 414

CHAPTER 16

Larynx

Multiple Choice

1. How many cartilages make up the larynx?
   a. 3.
   b. 6.
   c. 9.
   d. 11.

2. The larynx is located opposite which cervical vertebrae?
   a. C1–C2.
   b. C2–C3.
   c. C3–C6.
   d. C6–C7.

3. Which is NOT a region of the larynx?
   a. Cervical.
   b. Ventricle.
   c. Vestibule.
   d. Infraglottic.

4. The base of the tongue is located
   a. lateral to the larynx.
   b. inferior to the larynx.
   c. superior to the larynx.
   d. posterior to the larynx.

5. Which structure is located inferior to the larynx?
   a. Trachea.
   b. Platysma.
   c. Lobes of the thyroid gland.
   d. Anterior wall of the laryngopharynx.

6. Which is NOT a hyaline cartilage of the larynx?
   a. Cricoid.
   b. Thyroid.
   c. Arytenoid.
   d. Cuneiform.

7. Which cartilage of the larynx is NOT paired?
a. Cricoid.
b. Arytenoid.
c. Cuneiform minor.
d. Corniculate minor.

8. Which cartilage of the larynx helps to prevent the entrance of foreign bodies?
a. Thyroid.
b. Cricoid.
c. Epiglottis.
d. Cuneiform minor.

9. Which cartilage forms the framework of the true vocal cords?
a. Cricoid.
b. Arytenoid.
c. Cuneiform minor.
d. Corniculate minor.

10. Which feature of the thyroid cartilage is commonly referred to as the Adam's apple?
a. Lateral laminae.
b. Inferior tubercle.
c. Superior tubercle.
d. Laryngeal prominence.

11. Which feature of the thyroid articulates with the cricoid?
a. Inferior horn.
b. Superior horn.
c. Thyroid notch.
d. Lateral laminae.

12. Which is the superior portion of the laryngeal prominence?
a. Superior horn.
b. Thyroid notch.
c. Lateral laminae.
d. Superior tubercle.

13. Which feature of the thyroid cartilage serves as the attachment site for the extrinsic muscles of the larynx?
a. Oblique line.
b. Superior horn.
c. Lateral laminae.
d. Inferior tubercle.

14. Which is NOT an anatomic feature of the cricoid cartilage?
a. Arch.
b. Apex.
c. Lamina.
d. Inferior border.

15. Which feature of the cricoid cartilage articulates with the thyroid cartilage to form the cricothyroid joint?
a. Arch.
b. Lamina.
c. Inferior border.
d. Superior border.

16. The cricoarytenoid joint is formed by the articulation of the arytenoid cartilage with which feature of the cricoid cartilage?
a. Arch.
b. Lamina.
c. Inferior border.
d. Superior border.

17. Each, EXCEPT one, is a process of the arytenoid cartilage. Which is the EXCEPTION?
a. Apex.
b. Vocal.
c. Muscular.
d. Membrane.

18. Which feature of the arytenoid cartilage gives rise to the true vocal cords?
a. Base.
b. Apex process.
c. Vocal process.
d. Muscular process.

19. The cricoarytenoid joint is formed as which feature of the arytenoid cartilage articulates with the cricoid?
a. Base.
b. Apex process.
c. Vocal process.
d. Muscular process.

20. The epiglottis is the shape of a
a. pear.
b. sphere.
c. cube.
d. pyramid.

21. Which cartilage is located on the apex of the arytenoid cartilage?
a. Cricoid.
b. Epiglottis.
c. Cuneiform.
d. Corniculate.

22. Which cartilage does NOT help support the aryepiglottic fold?
a. Thyroid.
b. Epiglottis.
c. Cuneiform.
d. Corniculate.

23. Lobes of the thyroid gland form which relation of the larynx?
   a. Lateral.
   b. Inferior.
   c. Posterior.
   d. Anterolateral.

24. The larynx connects which two structures of the neck?
   a. Thyroid and trachea.
   b. Pharynx and trachea.
   c. Tongue and epiglottis.
   d. Oral cavity and thyroid.

25. Which structure lies posterior to the larynx?
   a. Vallecula.
   b. Carotid sheath.
   c. Infrahyoid muscles.
   d. Anterior wall of the laryngopharynx.

26. The epiglottis is made of which type of cartilage?
   a. Elastic.
   b. Fibrous.
   c. Hyaline.
   d. Articular.

27. Which is the largest of the laryngeal cartilages?
   a. Cricoid.
   b. Thyroid.
   c. Epiglottis.
   d. Corniculate.

28. Which laryngeal cartilage forms a complete ring?
   a. Cricoid.
   b. Epiglottis.
   c. Arytenoid.
   d. Cuneiform.

Feedback

1. ANS: c
   a. The larynx is made up of 9, not 3, cartilages.
   b. The larynx is made up of 9, not 6, cartilages.
   c. **Correct.** The larynx is made up of 9 cartilages.
   d. The larynx is made up of 9, not 11, cartilages.

   REF: p. 420

2. ANS: c
   a. The larynx is located opposite the 3rd to the 6th, not the 1st to the 2nd, cervical vertebrae.
   b. The larynx is located opposite the 3rd to the 6th, not the 2nd to the 3rd, cervical vertebrae.
   c. **Correct.** The larynx is located opposite the 3rd to the 6th cervical vertebrae.
   d. The larynx is located opposite the 3rd to the 6th, not the 6th to the 7th, cervical vertebrae.

   REF: p. 420

3. ANS: a
   a. **Correct.** Cervical is not a region of the larynx.
   b. Ventricle is a region of the larynx.
   c. Vestibule is a region of the larynx.
   d. Infraglottic is a region of the larynx.

   REF: p. 420

4. ANS: c
   a. The base of the tongue is a superior, not lateral, relation of the larynx.
   b. The base of the tongue is a superior, not inferior, relation of the larynx.
   c. **Correct.** The base of the tongue is a superior relation of the larynx.
   d. The base of the tongue is a superior, not posterior, relation of the larynx.

   REF: p. 420

5. ANS: a
   a. **Correct.** The trachea is located inferior to the larynx.
   b. The platysma is anterolateral, not inferior, to the larynx.
   c. The lobes of the thyroid gland are located lateral, not inferior, to the larynx.
   d. The anterior wall of the laryngopharynx is posterior, not inferior, to the larynx.

   REF: p. 420

6. ANS: d
   a. The cricoid is a hyaline cartilage.
   b. The thyroid is a hyaline cartilage.
   c. The arytenoid is a hyaline cartilage.
   d. **Correct.** The cuneiform is an elastic, not hyaline, cartilage.

   REF: p. 422

7. ANS: a
   a. **Correct.** The cricoid is a single, not paired, cartilage of the larynx.
   b. The arytenoid is a paired cartilage of the larynx.
   c. The cuneiform minor is a paired cartilage of the larynx.
   d. The corniculate minor is a paired cartilage of the larynx.

   REF: p. 422

8. ANS: c
   a. The epiglottis, not the thyroid, helps to prevent the entrance of foreign bodies.
   b. The epiglottis, not the cricoid, helps to prevent the entrance of foreign bodies.
   c. **Correct.** The epiglottis helps to prevent the entrance of foreign bodies.
   d. The epiglottis, not the cuneiform minor, helps to prevent the entrance of foreign bodies.

   REF: p. 422

9. ANS: b
   a. The framework of the true vocal cords is formed by the arytenoid cartilage, not the cricoid.
   b. **Correct.** The framework of the true vocal cords is formed by the arytenoid cartilage.
   c. The framework of the true vocal cords is formed by the arytenoid cartilage, not the cuneiform minor.
   d. The framework of the true vocal cords is formed by the arytenoid cartilage, not the corniculate minor.

   REF: p. 422

10. ANS: d
   a. The laryngeal prominence, not the lateral laminae, is commonly referred to as the Adam's apple.
   b. The laryngeal prominence, not the inferior tubercle, is commonly referred to as the Adam's apple.
   c. The laryngeal prominence, not the superior tubercle, is commonly referred to as the Adam's apple.
   d. **Correct.** The laryngeal prominence is commonly referred to as the Adam's apple.

   REF: p. 423

11. ANS: a
   a. **Correct.** The inferior horn of the thyroid articulates with the cricoid.
   b. The inferior horn, not the superior horn, of the thyroid articulates with the cricoid.
   c. The inferior horn of the thyroid, not the thyroid notch, articulates with the cricoid.
   d. The inferior horn of the thyroid, not the lateral laminae, articulates with the cricoid.

   REF: p. 423

12. ANS: b
   a. The thyroid notch, not the superior horn, is the superior portion of the laryngeal prominence.
   b. **Correct.** The thyroid notch is the superior portion of the laryngeal prominence.
   c. The thyroid notch, not the lateral laminae, is the superior portion of the laryngeal prominence.
   d. The thyroid notch, not the superior tubercle, is the superior portion of the laryngeal prominence.

   REF: p. 423

13. ANS: a

a. **Correct.** The oblique line serves as the attachment site for the extrinsic muscles of the larynx.
b. The oblique line, not the superior horn, serves as the attachment site for the extrinsic muscles of the larynx.
c. The oblique line, not the lateral laminae, serves as the attachment site for the extrinsic muscles of the larynx.
d. The oblique line, not the inferior tubercle, serves as the attachment site for the extrinsic muscles of the larynx.

REF: p. 423

14. ANS: b

a. The arch is an anatomic feature of the cricoid cartilage.
b. **Correct.** The apex is not an anatomic feature of the cricoid cartilage.
c. The lamina is an anatomic feature of the cricoid cartilage.
d. The inferior border is an anatomic feature of the cricoid cartilage.

REF: p. 424

15. ANS: c

a. The inferior border, not the arch, of the cricoid cartilage articulates with the thyroid cartilage to form the cricothyroid joint.
b. The inferior border, not the lamina, of the cricoid cartilage articulates with the thyroid cartilage to form the cricothyroid joint.
c. **Correct.** The inferior border of the cricoid cartilage articulates with the thyroid cartilage to form the cricothyroid joint.
d. The inferior border, not the superior border, of the cricoid cartilage articulates with the thyroid cartilage to form the cricothyroid joint.

REF: p. 424

16. ANS: d

a. The articulation of the superior border of the cricoid cartilage, not the arch, and the arytenoid cartilage forms the cricoarytenoid joint.
b. The articulation of the superior border of the cricoid cartilage, not the lamina, and the arytenoid cartilage forms the cricoarytenoid joint.
c. The articulation of the superior, not inferior, border of the cricoid cartilage and the arytenoid cartilage forms the cricoarytenoid joint.
d. **Correct.** The articulation of the superior border of the cricoid cartilage and the arytenoid cartilage forms the cricoarytenoid joint.

REF: p. 424

17. ANS: d

a. The arytenoid cartilage exhibits an apex process.
b. The arytenoid cartilage exhibits a vocal process.
c. The arytenoid cartilage exhibits a muscular process.
d. **Correct.** The arytenoid cartilage does NOT have a membrane process.

REF: p. 425

18. ANS: c

a. The vocal process, not the base, of the arytenoid cartilage gives rise to the true vocal cords.
b. The vocal process, not the apex process, of the arytenoid cartilage gives rise to the true vocal cords.
c. **Correct.** The vocal process gives rise to the true vocal cords.
d. The vocal process, not the muscular process, of the arytenoid cartilage gives rise to the true vocal cords.

REF: p. 425

19. ANS: a

a. **Correct.** The cricoarytenoid joint is formed as the base of the arytenoid articulates with the cricoid.
b. The cricoarytenoid joint is formed as the base, not the apex process, of the arytenoid articulates with the cricoid.
c. The cricoarytenoid joint is formed as the base, not the vocal process, of the arytenoid articulates with the cricoid.
d. The cricoarytenoid joint is formed as the base, not the muscular process, of the arytenoid articulates with the cricoid.

REF: p. 425

20. ANS: a

a. **Correct.** The epiglottis is pear-shaped.
b. The epiglottis is not shaped like a sphere, but rather like a pear.
c. The epiglottis is not shaped like a cube, but rather like a pear.
d. The epiglottis is not shaped like a pyramid, but rather like a pear.

REF: p. 426

21. ANS: d

a. The corniculate cartilage, not the cricoid cartilage, is located on the apex of the arytenoid cartilage.
b. The corniculate cartilage, not the epiglottis, is located on the apex of the arytenoid cartilage.
c. The corniculate cartilage, not the cuneiform cartilage, is located on the apex of the arytenoid cartilage.
d. **Correct.** The corniculate cartilage is located on the apex of the arytenoid cartilage.

REF: p. 427

22. ANS: a

a. **Correct.** The thyroid cartilage does not support the aryepiglottic fold.
b. The epiglottis helps support the aryepiglottic fold.
c. The cuneiform cartilage helps support the aryepiglottic fold.
d. The corniculate cartilage helps support the aryepiglottic fold.

REF: p. 427

23. ANS: a
- a. **Correct.** The lobes of the thyroid gland are located lateral to the larynx.
- b. The lobes of the thyroid gland are located lateral, not inferior, to the larynx.
- c. The lobes of the thyroid gland are located lateral, not posterior, to the larynx.
- d. The lobes of the thyroid gland are located lateral, not anterolateral, to the larynx.

REF: p. 420

24. ANS: b
- a. The larynx connects the pharynx and the trachea, not the thyroid and the trachea.
- b. **Correct.** The larynx connects the pharynx and the trachea.
- c. The larynx connects the pharynx and the trachea, not the tongue and the epiglottis.
- d. The larynx connects the pharynx and the trachea, not the oral cavity and the thyroid.

REF: p. 420

25. ANS: d
- a. The anterior wall of the laryngopharynx is posterior to the larynx; the vallecula is superior to the larynx.
- b. The anterior wall of the laryngopharynx is posterior to the larynx; the carotid sheath is lateral to the larynx.
- c. The anterior wall of the laryngopharynx is posterior to the larynx; the infrahyoid muscles are anterolateral to the larynx.
- d. **Correct.** The anterior wall of the laryngopharynx is posterior to the larynx.

REF: p. 420

26. ANS: a
- a. **Correct.** The epiglottis is made of elastic cartilage.
- b. The epiglottis is made of elastic, not fibrous, cartilage.
- c. The epiglottis is made of elastic, not hyaline, cartilage.
- d. The epiglottis is made of elastic, not articular, cartilage.

REF: p. 422

27. ANS: b
- a. The thyroid, not the cricoid, is the largest of the laryngeal cartilages.
- b. **Correct.** The thyroid is the largest of the laryngeal cartilages.
- c. The thyroid, not the epiglottis, is the largest of the laryngeal cartilages.
- d. The thyroid, not the corniculate, is the largest of the laryngeal cartilages.

REF: p. 422

28. ANS: a
- a. **Correct.** The cricoid cartilage forms the only complete ring of cartilage in the respiratory system.
- b. The cricoid cartilage, not the epiglottis, forms a complete cartilage ring.
- c. The cricoid, not arytenoid, cartilage forms a complete cartilage ring.
- d. The cricoid, not cuneiform, cartilage forms a complete cartilage ring.

REF: p. 422

CHAPTER 17

Cervical Fascia

Multiple Choice

1. Which of the following is also known as the investing layer of cervical fascia?
   a. Superficial fascia.
   b. Superficial layer of deep cervical fascia.
   c. Middle layer of deep cervical fascia.
   d. Deep layer of deep cervical fascia.

2. Which fascia forms the floor of the posterior triangle?
   a. Investing layer.
   b. Pretracheal layer.
   c. Prevertebral layer.
   d. Alar fascia.

3. Which fascia separates the retropharyngeal space from the danger space?
   a. Investing layer.
   b. Pretracheal layer.
   c. Prevertebral layer.
   d. Alar fascia.

4. Which is not a content of the carotid sheath?
   a. Internal carotid artery.
   b. Internal jugular vein.
   c. Vagus nerve.
   d. External carotid artery.

5. Which is the most important anatomic structure in the neck that limits spread of infection?
   a. Thyroid cartilage.
   b. Hyoid bone.
   c. Cricoid cartilage.
   d. Thyrohyoid membrane.

6. Which is not a suprahyoid space?
   a. Sublingual space.
   b. Masticator space.
   c. Peritonsillar space.
   d. Pretracheal space.

7. Puncturing the oesophagus anteriorly will lead to infection in which space?
   a. Sublingual space.
   b. Masticator space.
   c. Peritonsillar space.
   d. Pretracheal space.

8. Which fascial space does not traverse the entire length of the neck?
   a. Retropharyngeal space.
   b. Prevertebral space.
   c. Danger space.
   d. Lateral pharyngeal space.

9. Which structure forms the posterior boundary of the submandibular space?
   a. Mandible.
   b. Hyoid bone.
   c. Tongue.
   d. Superficial layer of deep cervical fascia.

10. Which is not a content of the sublingual space?
   a. Hypoglossal nerve.
   b. Lingual nerve.
   c. Sublingual gland.
   d. Anterior digastric muscle.

11. Which space is formed when the superficial layer of deep cervical fascia splits to enclose the ramus of mandible?
   a. Sublingual.
   b. Submaxillary.
   c. Lateral pharyngeal.
   d. Masticator.

12. Which structure forms the medial boundary of peritonsillar space?
   a. Palatoglossal fold.
   b. Palatopharyngeal fold.
   c. Palatine tonsil capsule.
   d. Superior constrictor muscle.

13. Infections in the Waldeyer's ring will spread to which of the following spaces?
   a. Superficial space.
   b. Retropharyngeal space.
   c. Danger space.
   d. Prevertebral space.

14. The inferior portion of which space is also known as the retrovisceral space?
   a. Superficial space.
   b. Retropharyngeal space.
   c. Danger space.
   d. Prevertebral space.

15. Which vertebral level is the lower extent of retropharyngeal space?
   a. T2.
   b. T3.
   c. T4.
   d. T5.

16. Infections from which space can spread via the superior mediastinum into the thorax?
   a. Superficial space.
   b. Retropharyngeal space.
   c. Danger space.
   d. Prevertebral space.

17. Which space is closed off superiorly, laterally and inferiorly, making spread of infections in this space uncommon?
   a. Superficial space.
   b. Retropharyngeal space.
   c. Danger space.
   d. Prevertebral space.

18. Which condition typically involves the supporting structures of the teeth?
   a. Dentoalveolar abscess.
   b. Periodontal abscess.
   c. Pericoronitis.
   d. Ludwig's angina.

19. Which condition most commonly affects the partially erupted third mandibular molar tooth?
   a. Dentoalveolar abscess.
   b. Periodontal abscess.
   c. Pericoronitis.
   d. Ludwig's angina.

20. Which condition results from introduction of gas deep to the skin due to trauma, infection or iatrogenic causes?
   a. Dentoalveolar abscess.
   b. Cervical emphysema.
   c. Pericoronitis.
   d. Ludwig's angina.

Feedback

1. ANS: b
   a. Superficial fascia is not known as the investing layer of cervical fascia.
   b. **Correct.** Superficial layer of deep cervical fascia is also known as the investing layer of cervical fascia.
   c. Middle layer of deep cervical fascia is not known as the investing layer of cervical fascia.
   d. Deep layer of deep cervical fascia is not known as the investing layer of cervical fascia.

   REF: p. 438

2. ANS: c
   a. Investing layer forms the roof of the posterior triangle.
   b. Pretracheal layer forms a covering around the visceral structures in the neck.
   c. **Correct.** Prevertebral layer forms the floor of the posterior triangle.
   d. Alar fascia separates retropharyngeal space from the danger space.

   REF: p. 441

3. ANS: d
   a. Investing layer does not separate the retropharyngeal space from the danger space.
   b. Pretracheal layer does not separate the retropharyngeal space from the danger space.
   c. Prevertebral layer does not separate the retropharyngeal space from the danger space.
   d. **Correct.** Alar fascia separates the retropharyngeal space from the danger space.

   REF: p. 441

4. ANS: d
   a. Internal carotid artery is a content of the carotid sheath.
   b. Internal jugular vein is a content of the carotid sheath.
   c. Vagus nerve is a content of the carotid sheath.
   d. **Correct.** External carotid artery is not a content of the carotid sheath.

   REF: p. 442

5. ANS: b
   a. Hyoid bone and not thyroid cartilage is the most important anatomic structure in the neck that limits spread of infection.
   b. **Correct.** Hyoid bone is the most important anatomic structure in the neck that limits spread of infection.
   c. Hyoid bone and not cricoid cartilage is the most important anatomic structure in the neck that limits spread of infection.
   d. Hyoid bone and not thyrohyoid membrane is the most important anatomic structure in the neck that limits spread of infection.

   REF: p. 443

6. ANS: d
   a. Sublingual space is a suprahyoid space.
   b. Masticator space is a suprahyoid space.
   c. Peritonsillar space is a suprahyoid space.
   d. **Correct.** Pretracheal space is an infrahyoid space and not suprahyoid space.

   REF: pp. 444–446

7. ANS: d
   a. Puncturing the oesophagus anteriorly will not lead to infection in the sublingual space.
   b. Puncturing the oesophagus anteriorly will not lead to infection in the masticator space.
   c. Puncturing the oesophagus anteriorly will not lead to infection in the peritonsillar space.
   d. **Correct.** Puncturing the oesophagus anteriorly will lead to infection in the pretracheal space.

   REF: p. 446

8. ANS: d
   a. Retropharyngeal space traverses the entire length of the neck.
   b. Prevertebral space traverses the entire length of the neck.
   c. Danger space traverses the entire length of the neck.
   d. **Correct.** Lateral pharyngeal space is a suprahyoid space which does not traverse the entire length of the neck.

   REF: pp. 444, 446

9. ANS: b
   a. Mandible forms the anterior and lateral boundary of the submandibular space.
   b. **Correct.** Hyoid bone forms the posterior boundary of the submandibular space.
   c. Tongue forms the superior boundary of the submandibular space.
   d. Superficial layer of deep cervical fascia forms the inferior boundary of the submandibular space.

   REF: p. 444

10. ANS: d
   a. Hypoglossal nerve is a content of the sublingual space.
   b. Lingual nerve is a content of the sublingual space.
   c. Sublingual gland is a content of the sublingual space.
   d. **Correct.** Anterior digastric muscle is a content of the submaxillary and not sublingual space.

   REF: p. 444

11. ANS: d
   a. Sublingual space is not formed when the superficial layer of deep cervical fascia splits to enclose the ramus of mandible.
   b. Submaxillary space is not formed when the superficial layer of deep cervical fascia splits to enclose the ramus of mandible.
   c. Lateral pharyngeal space is not formed when the superficial layer of deep cervical fascia splits to enclose the ramus of mandible.
   d. **Correct.** Masticator space is formed when the superficial layer of deep cervical fascia splits to enclose the ramus of mandible.

   REF: p. 444

12. ANS: c
   a. Palatoglossal fold forms the anterior boundary of peritonsillar space.
   b. Palatopharyngeal fold forms the posterior boundary of peritonsillar space.
   c. **Correct.** Palatine tonsil capsule forms the medial boundary of peritonsillar space.
   d. Superior constrictor muscle forms the lateral boundary of peritonsillar space.

   REF: p. 445

13. ANS: b

a. Infections in the Waldeyer's ring will not spread to superficial space.
b. **Correct.** Infections in the Waldeyer's ring will spread to retropharyngeal space.
c. Infections in the Waldeyer's ring will not spread to danger space.
d. Infections in the Waldeyer's ring will not spread to prevertebral space.

REF: p. 446

14. ANS: b

a. The inferior portion of superficial space is not known as the retrovisceral space.
b. **Correct.** The inferior portion of retropharyngeal space is also known as the retrovisceral space.
c. The inferior portion of danger space is not known as the retrovisceral space.
d. The inferior portion of prevertebral space is not known as the retrovisceral space.

REF: p. 446

15. ANS: a

a. **Correct.** T2 is the lower extent of retropharyngeal space.
b. T3 is not the lower extent of retropharyngeal space.
c. T4 is not the lower extent of retropharyngeal space.
d. T5 is not the lower extent of retropharyngeal space.

REF: p. 446

16. ANS: c

a. Infections from superficial space cannot spread via the superior mediastinum into the thorax.
b. Infections from retropharyngeal space cannot spread via the superior mediastinum into the thorax.
c. **Correct.** Infections from danger space can spread via the superior mediastinum into the thorax.
d. Infections from prevertebral space cannot spread via the superior mediastinum into the thorax.

REF: p. 446

17. ANS: d

a. Superficial space is not closed off superiorly, laterally and inferiorly.
b. Retropharyngeal space is not closed off superiorly, laterally and inferiorly.
c. Danger space is not closed off superiorly, laterally and inferiorly.
d. **Correct.** Prevertebral space is closed off superiorly, laterally and inferiorly, making spread of infections in this space uncommon.

REF: p. 446

18. ANS: b

a. Dentoalveolar abscess involves the apex of the tooth.
b. **Correct.** Periodontal abscess typically involves the supporting structures of the teeth.
c. Pericoronitis involves the area around the crown of the tooth.
d. Ludwig's angina is cellulitis in the floor of the oral cavity.

REF: pp. 448, 449

19. ANS: c

a. Dentoalveolar abscess does not affect the partially erupted third mandibular molar tooth.
b. Periodontal abscess does not affect the partially erupted third mandibular molar tooth.
c. **Correct.** Pericoronitis most commonly affects the partially erupted third mandibular molar tooth.
d. Ludwig's angina does not affect the partially erupted third mandibular molar tooth.

REF: p. 449

20. ANS: b

a. Dentoalveolar abscess does not result from introduction of gas deep to the skin due to trauma, infection or iatrogenic causes.
b. **Correct.** Cervical emphysema results from introduction of gas deep to the skin due to trauma, infection or iatrogenic causes.
c. Pericoronitis does not result from introduction of gas deep to the skin due to trauma, infection or iatrogenic causes.
d. Ludwig's angina does not result from introduction of gas deep to the skin due to trauma, infection or iatrogenic causes.

REF: p. 450

CHAPTER 18

Ear

Multiple Choice

1. Which portion of the ear is responsible for maintaining balance?
   a. Auditory.
   b. Vestibular.
   c. Middle ear.
   d. External ear.

2. How many major functions does the ear have?
   a. One.
   b. Two.
   c. Three.
   d. Four.

3. Which is NOT a division of the ear?
   a. Inner.
   b. Middle.
   c. Anterior.
   d. External.

4. Which part of the ear is most superficial?
   a. Cochlea.
   b. Malleus.
   c. Auricle.
   d. Saccule.

5. Which structure is NOT a part of the external ear?
   a. Auricle.
   b. Stapes.
   c. Tympanic membrane.
   d. External acoustic meatus.

6. Which is the function of the external ear?
   a. Gather sound.
   b. Transmit vibrations.
   c. Establish balance.
   d. Perceive sound.

7. Sound gathered by the external ear is then directed to which structure?
   a. Auricle.
   b. Cochlea.
   c. Semicircular canals.
   d. Tympanic membrane.

8. Which does NOT aid in the transmission of sound vibrations in the middle ear?
   a. Incus.
   b. Stapes.
   c. Auricle.
   d. Malleus.

9. Which is an ear ossicle?
   a. Stapes.
   b. Auricle.
   c. Cochlea.
   d. Helicotrema.

10. Ear ossicles
   a. gather sound.
   b. transmit sound vibrations.
   c. receive sound transmissions.
   d. maintain balance orientation.

11. The middle ear is mainly in which location?
   a. Parietal bone.
   b. Occipital bone.
   c. Greater wing of the sphenoid bone.
   d. Petrous portion of the temporal bone.

12. The auditory tube connects the tympanic cavity with which structure?
   a. Nasopharnyx.
   b. Scala tympani.
   c. Scala vestibule.
   d. Internal acoustic meatus.

13. Which is NOT contained within the tympanic cavity?
   a. Malleus.
   b. Stapedius muscle.
   c. Membranous labyrinth.
   d. Tensor tympani muscle.

14. Which nerve is NOT found in the tympanic cavity?
   a. Lesser petrosal.
   b. Chorda tympani.
   c. Vestibulocochlear.
   d. Tympanic branch of the glossopharyngeal.

15. The vestibular and auditory structures of the ear are filled with
   a. air.
   b. fluid.
   c. muscle.
   d. arteries.

16. Which structure makes up the auditory portion of the inner ear?
   a. Utricle.
   b. Auricle.
   c. Malleus.
   d. Cochlea.

17. Which is NOT a structure of the vestibular portion of the inner ear?
   a. Utricle.
   b. Saccule.
   c. Semicircular canals.
   d. Tympanic membrane.

18. Which is NOT a part of the inner ear?
   a. Cochlea.
   b. Utricle.
   c. Tympanic plexus.
   d. Osseous labyrinth.

19. Which structure contains the receptors for the auditory and vestibular functions?
   a. Osseous labyrinth.
   b. Semicircular canals.
   c. Membranous labyrinth.
   d. Internal acoustic meatus.

20. The fluid located in which structure is known as endolymph?
   a. Saccule.
   b. Cochlea.
   c. Osseous labyrinth.
   d. Membranous labyrinth.

21. The fluid located in which structure is known as perilymph?
   a. Saccule.
   b. Cochlea.
   c. Osseous labyrinth.
   d. Membranous labyrinth.

22. The vestibulocochlear nerve enters the inner ear through which structure?
   a. Cochlear duct.
   b. Auditory tube.
   c. Internal acoustic meatus.
   d. External acoustic meatus.

23. The depressed area between the helix and the antihelix is called the
   a. tragus.
   b. crus helix.
   c. scaphoid fossa.
   d. intertragic notch.

24. The auricle is composed of skin and which type of cartilage?
   a. Elastic.
   b. Fibrous.
   c. Hyaline.
   d. Articular.

25. Which portion of the auricle is NOT composed of cartilage?
   a. Helix.
   b. Tragus.
   c. Lobule.
   d. Antitragus.

26. Which structure does NOT form the osseous portion of the external acoustic meatus?
   a. Petrous portion of the temporal bone.
   b. Mastoid portion of the temporal bone.
   c. Tympanic portion of the temporal bone.
   d. Squamous portion of the temporal bone.

27. The external layer of the tympanic membrane is composed of which type of epithelium?
   a. Simple columnar.
   b. Stratified cuboidal.
   c. Stratified squamous.
   d. Pseudostratified columnar.

Feedback

1. ANS: b
   a. The vestibular, not auditory, portion of the ear is responsible for maintaining balance.
   b. **Correct.** The vestibular portion of the ear is responsible for maintaining balance.
   c. The vestibular portion, not the middle ear, is responsible for maintaining balance.
   d. The vestibular portion, not the external ear, is responsible for maintaining balance.

   REF: p. 452

2. ANS: b
   a. The ear has two major functions: vestibular and auditory.
   b. **Correct.** The ear has major two functions: vestibular and auditory.
   c. The ear has two, not three, major functions: vestibular and auditory.
   d. The ear has two, not four, major functions: vestibular and auditory.

   REF: p. 452

3. ANS: c
   a. The ear is divided into three parts: inner, middle, and external.
   b. The ear is divided into three parts: inner, middle, and external.
   c. **Correct.** The ear is divided into three parts: inner, middle, and external. There is no anterior division of the ear.
   d. The ear is divided into three parts: inner, middle, and external.

   REF: p. 452

4. ANS: c
   a. The cochlea is a component of the inner ear, whereas the auricle is a component of the external ear—the most superficial structure.
   b. The malleus is a component of the middle ear, whereas the auricle is a component of the external ear—the most superficial structure.
   c. **Correct.** The auricle, as part of the external ear, is the most superficial structure.
   d. The saccule is a component of the inner ear, whereas the auricle is a component of the external ear—the most superficial structure.

   REF: p. 452

5. ANS: b
   a. The auricle is a structure of the external ear.
   b. **Correct.** The stapes is a structure of the middle ear, not the external ear.
   c. The tympanic membrane is a structure of the external ear.
   d. The external acoustic meatus is a structure of the external ear.

   REF: p. 452

6. ANS: a
   a. **Correct.** Gathering sound is the primary function of the external ear.
   b. Transmitting sound vibrations is not a function of the external ear, but rather the middle ear.
   c. Balance orientation is not a function of the external ear, but rather the inner ear.
   d. Perceiving sound is not a function of the external ear, but rather the middle and inner regions of the ear.

   REF: p. 452

7. ANS: d
   a. Sound gathered by the external ear is then directed to the tympanic membrane, not the auricle.
   b. Sound gathered by the external ear is then directed to the tympanic membrane, not the cochlea.
   c. Sound gathered by the external ear is then directed to the tympanic membrane, not the semicircular canals.
   d. **Correct.** Sound gathered by the external ear is then directed to the tympanic membrane.

   REF: p. 452

8. ANS: c

a. The incus aids in the transmission of sound vibrations in the middle ear.
b. The stapes aids in the transmission of sound vibrations in the middle ear.
c. **Correct.** The auricle does not transmit sound vibrations in the middle ear.
d. The malleus aids in the transmission of sound vibrations in the middle ear.

REF: p. 452

9. ANS: a

a. **Correct.** The stapes is one of three ear ossicles located in the middle ear.
b. The auricle is not an ossicle, the stapes is.
c. The cochlea is not an ossicle, the stapes is.
d. The helicotrema is not an ossicle, the stapes is.

REF: p. 452

10. ANS: b

a. Ear ossicles transmit sound vibrations, as opposed to gathering sound.
b. **Correct.** Ear ossicles transmit sound vibrations.
c. Ear ossicles transmit sound vibrations, as opposed to receiving sound transmissions.
d. Ear ossicles transmit sound vibrations, as opposed to maintaining balance orientation.

REF: p. 452

11. ANS: d

a. The middle ear is located within the petrous portion of the temporal bone, not the parietal bone.
b. The middle ear is located within the petrous portion of the temporal bone, not the occipital bone.
c. The middle ear is located within the petrous portion of the temporal bone, not the greater wing of the sphenoid bone.
d. **Correct.** The middle ear is located within the petrous portion of the temporal bone.

REF: p. 452

12. ANS: a

a. **Correct.** The auditory tube connects the tympanic cavity with the nasopharynx.
b. The auditory tube connects the tympanic cavity with the nasopharynx, not the scala tympani.
c. The auditory tube connects the tympanic cavity with the nasopharynx, not the scala vestibule.
d. The auditory tube connects the tympanic cavity with the nasopharynx, not the internal acoustic meatus.

REF: p. 452

13. ANS: c
   a. The malleus is located within the tympanic cavity.
   b. The stapedius muscle is located within the tympanic cavity.
   c. **Correct.** The membranous labyrinth is located in the inner ear, not the tympanic cavity.
   d. The tensor tympani muscle is located within the tympanic cavity.

   REF: p. 452

14. ANS: c
   a. The lesser petrosal nerve is found within the tympanic cavity.
   b. The chorda tympani is found within the tympanic cavity.
   c. **Correct.** The vestibulocochlear nerve is not located within the tympanic cavity.
   d. The tympanic branch of the glossopharyngeal nerve is found within the tympanic cavity.

   REF: p. 452

15. ANS: b
   a. The vestibular and auditory structures of the ear are filled with fluid, not air.
   b. **Correct.** The vestibular and auditory structures of the ear are filled with fluid.
   c. The vestibular and auditory structures of the ear are filled with fluid, not muscle.
   d. The vestibular and auditory structures of the ear are filled with fluid, not arteries.

   REF: p. 452

16. ANS: d
   a. The cochlea, not the utricle, makes up the auditory portion of the inner ear.
   b. The cochlea, not the auricle, makes up the auditory portion of the inner ear.
   c. The cochlea, not the malleus, makes up the auditory portion of the inner ear.
   d. **Correct.** The cochlea makes up the auditory portion of the inner ear.

   REF: p. 452

17. ANS: d
   a. The utricle is a structure of the vestibular portion of the inner ear.
   b. The saccule is a structure of the vestibular portion of the inner ear.
   c. The semicircular canals are a component of the vestibular portion of the inner ear.
   d. **Correct.** The tympanic membrane is a structure of the external ear, not the inner ear.

   REF: p. 452

18. ANS: c
   a. The inner ear includes the cochlea.
   b. The inner ear includes the utricle.
   c. **Correct.** The tympanic plexus is not a portion of the inner ear, but a neurological structure of the middle ear.
   d. The inner ear is located in an osseous labyrinth.

   REF: p. 452

19. ANS: c
   a. The receptors for vestibular and auditory functions are located within the membranous labyrinth, not the osseous labyrinth.
   b. The receptors for vestibular and auditory functions are located within the membranous labyrinth, not the semicircular canals.
   c. **Correct.** The membranous labyrinth contains the receptors for the auditory and vestibular functions.
   d. The receptors for vestibular and auditory functions are located within the membranous labyrinth, not the internal acoustic meatus.

   REF: p. 452

20. ANS: d
   a. The fluid located in the membranous labyrinth, not the saccule, is known as endolymph.
   b. The fluid located in the membranous labyrinth, not the cochlea, is known as endolymph.
   c. The fluid located in the membranous labyrinth, not the osseous labyrinth, is known as endolymph.
   d. **Correct.** The fluid located in the membranous labyrinth is known as endolymph.

   REF: p. 452

21. ANS: c
   a. The fluid located in the osseous labyrinth, not the saccule, is known as perilymph.
   b. The fluid located in the osseous labyrinth, not the cochlea, is known as perilymph.
   c. **Correct.** The fluid located in the osseous labyrinth is known as perilymph.
   d. The fluid located in the osseous labyrinth, not the membranous labyrinth, is known as perilymph.

   REF: p. 452

22. ANS: c
   a. The internal acoustic meatus, not the cochlear duct, is the structure through which the vestibulocochlear nerve enters the inner ear.
   b. The internal acoustic meatus, not the auditory tube, is the structure through which the vestibulocochlear nerve enters the inner ear.
   c. **Correct.** The internal acoustic meatus is the structure through which the vestibulocochlear nerve enters the inner ear.
   d. The internal acoustic meatus, not the external acoustic meatus, is the structure through which the vestibulocochlear nerve enters the inner ear.

   REF: p. 452

23. ANS: c

a. The scaphoid fossa, not the tragus, is the depressed area between the helix and the antihelix.
b. The scaphoid fossa, not the crus helix, is the depressed area between the helix and the antihelix.
c. **Correct.** The scaphoid fossa is the depressed area between the helix and the antihelix.
d. The scaphoid fossa, not the intertragic notch, is the depressed area between the helix and the antihelix.

REF: p. 455

24. ANS: a

a. **Correct.** The auricle is composed of skin and elastic cartilage.
b. The auricle is composed of skin and elastic cartilage, not fibrous.
c. The auricle is composed of skin and elastic cartilage, not hyaline.
d. The auricle is composed of skin and elastic cartilage, not articular.

REF: p. 455

25. ANS: c

a. The lobule, not the helix, of the auricle is not composed of cartilage.
b. The lobule, not the tragus, of the auricle is not composed of cartilage.
c. **Correct.** The lobule of the auricle is not composed of cartilage.
d. The lobule, not the antitragus, of the auricle is not composed of cartilage.

REF: p. 455

26. ANS: b

a. The petrous portion of the temporal bone contributes to forming the external acoustic meatus.
b. **Correct.** The mastoid portion of the temporal bone does *not* contribute to forming the osseous portion of the external acoustic meatus.
c. The tympanic portion of the temporal bone contributes to forming the external acoustic meatus.
d. The squamous portion of the temporal bone contributes to forming the external acoustic meatus.

REF: p. 455

27. ANS: c

a. The external layer of the tympanic membrane is composed of stratified squamous epithelium, not simple columnar.
b. The external layer of the tympanic membrane is composed of stratified squamous epithelium, not stratified cuboidal.
c. **Correct.** The external layer of the tympanic membrane is composed of stratified squamous epithelium.
d. The external layer of the tympanic membrane is composed of stratified squamous epithelium, not pseudostratified columnar.

REF: p. 455

CHAPTER 19

Eye and Orbit

Multiple Choice

1. The optic nerve passes through which opening in the orbit?
   a. Optic foramen.
   b. Nasolacrimal canal.
   c. Inferior orbital fissure.
   d. Superior orbital fissure.

2. The oculomotor nerve passes through which opening in the orbit?
   a. Optic foramen.
   b. Zygomatic foramen.
   c. Inferior orbital fissure.
   d. Superior orbital fissure.

3. The infraorbital groove is located within which bone of the skull?
   a. Frontal.
   b. Maxilla.
   c. Sphenoid.
   d. Zygomatic.

4. The optic foramen is located within which bone of the skull?
   a. Frontal.
   b. Ethmoid.
   c. Sphenoid.
   d. Zygomatic.

5. Which opening of the orbit does NOT have the frontal bone as a bony boundary?
   a. Supraorbital foramen.
   b. Inferior orbital fissure.
   c. Anterior ethmoidal foramen.
   d. Posterior ethmoidal foramen.

6. Which bone does NOT help to form the orbital margin?
   a. Frontal.
   b. Maxilla.
   c. Ethmoid.
   d. Zygomatic.

7. Which bone contributes to the superior wall of the orbit?
   a. Maxilla.
   b. Zygomatic.
   c. Lesser wing of the sphenoid.
   d. Greater wing of the sphenoid.

8. Which bone does NOT help to form the inferior wall of the orbit?
   a. Maxilla.
   b. Palatine.
   c. Lacrimal.
   d. Zygomatic.

9. The medial wall of the orbit is formed by all of the following bones, EXCEPT the
   a. ethmoid.
   b. lacrimal.
   c. sphenoid.
   d. zygomatic.

10. The supraorbital nerve passes through which opening in the orbit?
   a. Infraorbital canal.
   b. Nasolacrimal canal.
   c. Zygomatic foramen.
   d. Supraorbital foramen.

11. The diameter of the eye is approximately
   a. 2.0 cm.
   b. 2.5 cm.
   c. 3.0 cm.
   d. 3.5 cm.

12. The eye lies in which portion of the orbit?
   a. Inferior.
   b. Superior.
   c. Anterior.
   d. Posterior.

13. The thin capsule that surrounds the eye is called the
   a. fascia alar.
   b. fascia bulbi.
   c. palpebral fascia.
   d. infrahyoid fascia.

14. Which is NOT a coat that composes the eye?
   a. Sclera.
   b. Retina.
   c. Uveal tract.
   d. Orbital septum.

15. Which structure separates the chambers of the eye?
  a. Iris.
  b. Lens.
  c. Sclera.
  d. Cornea.

16. Which structure secretes aqueous humor to fill the anterior segment of the eye?
  a. Choroid.
  b. Ora serrata.
  c. Ciliary body.
  d. Tarsal glands.

17. The anterior segment of the eye is divided into which chambers?
  a. Medial and lateral.
  b. Deep and superficial.
  c. Superior and inferior.
  d. Anterior and posterior.

18. The posterior segment of the eye is called the
  a. optic chamber.
  b. vitreous cavity.
  c. aqueous cavity.
  d. retinal chamber.

19. The outermost layer of the eye is called the
  a. sclera.
  b. retina.
  c. choroid.
  d. optic disc.

20. Which does NOT compose the uveal tract?
  a. Iris.
  b. Choroid.
  c. Optic disc.
  d. Ciliary body.

21. Which structure forms a layer between the sclera and the retina?
  a. Iris.
  b. Choroid.
  c. Optic disc.
  d. Ciliary body.

22. The ciliary muscle is located within which structure?
  a. Iris.
  b. Lens.
  c. Retina.
  d. Ciliary body.

23. Which structure is responsible for focusing the eye?
a. Lens.
b. Retina.
c. Choroid.
d. Macula lutea.

24. Which is NOT located on the posterior portion of the retina?
a. Cornea.
b. Optic disc.
c. Macula lutea.
d. Fovea centralis.

25. Which area is also called the “blind spot”?
a. Pupil.
b. Retina.
c. Optic disc.
d. Fovea centralis.

26. Which muscle of the orbit raises the upper eyelid?
a. Lateral rectus.
b. Inferior rectus.
c. Superior oblique.
d. Levator palpebrae superioris.

27. Which extrinsic muscle of the eye originates at the maxilla?
a. Inferior rectus.
b. Superior rectus.
c. Inferior oblique.
d. Superior oblique.

28. Which is NOT an action of the inferior rectus muscle?
a. Intorsion.
b. Extorsion.
c. Adduction.
d. Depression.

29. Which structure does NOT pass through the superior orbital fissure?
a. Trochlear nerve.
b. Inferior ophthalmic vein.
c. Superior ophthalmic vein.
d. Posterior ethmoidal nerve.

30. Which structure does NOT pass through the inferior orbital fissure?
a. Zygomatic nerve.
b. Infraorbital nerve.
c. Branch of inferior ophthalmic vein.
d. Superior ophthalmic vein.

31. Which structure is also known as Tenon's capsule?
   a. Fascia alar.
   b. Fascia bulbi.
   c. Palpebral fascia.
   d. Infrahyoid fascia.

32. Which structure connects the lens to the ciliary body?
   a. Ora serrata.
   b. Inferior tarsus.
   c. Suspensory ligaments.
   d. Superior tarsal muscle.

Feedback

1. ANS: a
   a. **Correct.** The optic nerve passes through the optic foramen.
   b. The optic nerve passes through the optic foramen, not the nasolacrimal canal.
   c. The optic nerve passes through the optic foramen, not the inferior orbital fissure.
   d. The optic nerve passes through the optic foramen, not the superior orbital fissure.

   REF: p. 482

2. ANS: d
   a. The oculomotor nerve passes through the superior orbital fissure, not the optic foramen.
   b. The oculomotor nerve passes through the superior orbital fissure, not the zygomatic foramen.
   c. The oculomotor nerve passes through the superior, not inferior, orbital fissure.
   d. **Correct.** The oculomotor nerve passes through the superior orbital fissure.

   REF: p. 482

3. ANS: b
   a. The infraorbital groove is located within the maxilla, not the frontal bone.
   b. **Correct.** The infraorbital groove is located within the maxilla.
   c. The infraorbital groove is located within the maxilla, not the sphenoid bone.
   d. The infraorbital groove is located within the maxilla, not the zygomatic bone.

   REF: p. 482

4. ANS: c
   a. The optic foramen is located within the lesser wing of the sphenoid, not the frontal bone.
   b. The optic foramen is located within the lesser wing of the sphenoid, not the ethmoid bone.
   c. **Correct.** The optic foramen is located within the lesser wing of the sphenoid.
   d. The optic foramen is located within the lesser wing of the sphenoid, not the zygomatic bone.

   REF: p. 482

5. ANS: b
   a. The supraorbital foramen is located within the frontal bone.
   b. **Correct.** The inferior orbital fissure has the greater wing of the sphenoid and the maxilla as bony boundaries, not the frontal bone.
   c. The anterior ethmoidal foramen has the frontal and ethmoid bones as bony boundaries.
   d. The posterior ethmoidal foramen has the frontal and ethmoid bones as bony boundaries.

REF: p. 482

6. ANS: c
   a. The frontal bone helps form the orbital margin.
   b. The maxilla bone helps form the orbital margin.
   c. **Correct.** The ethmoid bone does *not* contribute to the orbital margin.
   d. The zygomatic bone helps form the orbital margin.

REF: p. 482

7. ANS: c
   a. The maxilla does *not* form the superior wall of the orbit.
   b. The zygomatic bone does *not* form the superior wall of the orbit.
   c. **Correct.** The lesser wing of the sphenoid and the frontal bone form the superior wall of the orbit.
   d. The greater wing of the sphenoid does *not* form the superior wall of the orbit.

REF: p. 482

8. ANS: c
   a. The maxilla bone helps form the inferior wall of the orbit.
   b. The palatine bone helps form the inferior wall of the orbit.
   c. **Correct.** The lacrimal bone does *not* help to form the inferior wall of the orbit.
   d. The zygomatic bone helps form the inferior wall of the orbit.

REF: p. 482

9. ANS: d
   a. The ethmoid bone does indeed form part of the medial wall of the orbit.
   b. The lacrimal bone does indeed form part of the medial wall of the orbit.
   c. The sphenoid bone does indeed form part of the medial wall of the orbit.
   d. **Correct.** The zygomatic bone does *not* help form the medial wall of the orbit.

REF: p. 482

10. ANS: d
   a. The supraorbital nerve does not pass through the infraorbital canal.
   b. The supraorbital nerve does not pass through the nasolacrimal canal.
   c. The supraorbital nerve does not pass through the zygomatic foramen.
   d. **Correct.** The supraorbital nerve and vessels pass through the supraorbital foramen.

REF: p. 482

11. ANS: b
   a. The diameter of the eye is approximately 2.5 cm, not 2.0 cm.
   b. **Correct.** The diameter of the eye is approximately 2.5 cm.
   c. The diameter of the eye is approximately 2.5 cm, not 3.0 cm.
   d. The diameter of the eye is approximately 2.5 cm, not 3.5 cm.

   REF: p. 484

12. ANS: c
   a. The eye lies in the anterior, not inferior, portion of the orbit.
   b. The eye lies in the anterior, not superior, portion of the orbit.
   c. **Correct.** The eye lies in the anterior portion of the orbit.
   d. The eye lies in the anterior, not posterior, portion of the orbit.

   REF: p. 484

13. ANS: b
   a. The thin capsule that surrounds the eye is called the fascia bulbi, not the fascia alar.
   b. **Correct.** The thin capsule that surrounds the eye is called the fascia bulbi.
   c. The thin capsule that surrounds the eye is called the fascia bulbi, not the palpebral fascia.
   d. The thin capsule that surrounds the eye is called the fascia bulbi, not the infrahyoid fascia.

   REF: p. 484

14. ANS: d
   a. The eye is composed of three coats; the sclera is one of them.
   b. The eye is composed of three coats; the retina is one of them.
   c. The eye is composed of three coats; the uveal tract is one of them.
   d. **Correct.** The orbital septum is not a coat that composes the eye.

   REF: p. 484

15. ANS: a
   a. **Correct.** The iris separates the chambers of the eye.
   b. The iris, not the lens, separates the chambers of the eye.
   c. The iris, not the sclera, separates the chambers of the eye.
   d. The iris, not the cornea, separates the chambers of the eye.

   REF: p. 484

16. ANS: c
   a. The ciliary body, not the choroid, secretes aqueous humor in the anterior segment of the eye.
   b. The ciliary body, not the ora serrata, secretes aqueous humor in the anterior segment of the eye.
   c. **Correct.** The ciliary body secretes aqueous humor to fill the anterior segment of the eye.
   d. The ciliary body, not the tarsal glands, secretes aqueous humor in the anterior segment of the eye.

   REF: p. 484

17. ANS: d

a. The anterior segment of the eye is divided into the anterior and posterior chambers, not medial and lateral.
b. The anterior segment of the eye is divided into the anterior and posterior chambers, not deep and superficial.
c. The anterior segment of the eye is divided into the anterior and posterior chambers, not superior and inferior.
d. **Correct.** The anterior segment of the eye is divided into the anterior and posterior chambers.

REF: p. 484

18. ANS: b

a. The posterior segment of the eye is called the vitreous cavity, not the optic chamber.
b. **Correct.** The posterior segment of the eye is called the vitreous cavity.
c. The posterior segment of the eye is called the vitreous cavity; the anterior segment is called the aqueous cavity.
d. The posterior segment of the eye is called the vitreous cavity, not the retinal chamber.

REF: p. 484

19. ANS: a

a. **Correct.** The sclera is the outermost layer of the eye.
b. The sclera, not the retina, is the outermost layer of the eye.
c. The sclera, not the choroid, is the outermost layer of the eye.
d. The sclera, not the optic disc, is the outermost layer of the eye.

REF: p. 486

20. ANS: c

a. The iris helps form the uveal tract.
b. The choroid layer helps form the uveal tract.
c. **Correct.** The optic disc is *not* a constituent of the uveal tract.
d. The ciliary body helps form the uveal tract.

REF: p. 486

21. ANS: b

a. The choroid, not the iris, forms a layer between the sclera and the retina.
b. **Correct.** The choroid is a layer between the sclera and the retina.
c. The choroid, not the optic disc, forms a layer between the sclera and the retina.
d. The choroid, not the ciliary body, forms a layer between the sclera and the retina.

REF: p. 486

22. ANS: d

a. The ciliary muscle is located within the ciliary body, not the iris.
b. The ciliary muscle is located within the ciliary body, not the lens.
c. The ciliary muscle is located within the ciliary body, not the retina.
d. **Correct.** The ciliary muscle is located within the ciliary body.

REF: p. 486

23. ANS: a
   a. **Correct.** The lens is responsible for focusing the eye.
   b. The lens is responsible for focusing the eye, not the retina.
   c. The lens is responsible for focusing the eye, not the choroid.
   d. The lens is responsible for focusing the eye, not the macula lutea.

   REF: p. 486

24. ANS: a
   a. **Correct.** The cornea is located at the anterior portion of the eye, not the posterior portion of the retina.
   b. The optic disc is located on the posterior portion of the retina.
   c. The macula lutea is located on the posterior portion of the retina.
   d. The fovea centralis is located on the posterior portion of the retina.

   REF: p. 486

25. ANS: c
   a. The optic disc, not the pupil, is also called the “blind spot.”
   b. The optic disc, not the retina, is also called the “blind spot.”
   c. **Correct.** The optic disc is also called the “blind spot.”
   d. The optic disc, not the fovea centralis, is also called the “blind spot.”

   REF: p. 486

26. ANS: d
   a. The levator palpebrae superioris muscle, not the lateral rectus muscle, raises the upper eyelid.
   b. The levator palpebrae superioris muscle, not the inferior rectus muscle, raises the upper eyelid.
   c. The levator palpebrae superioris muscle, not the superior oblique muscle, raises the upper eyelid.
   d. **Correct.** The levator palpebrae superioris muscle raises the upper eyelid.

   REF: p. 487

27. ANS: c
   a. The inferior rectus muscle originates at the common tendinous ring on the sphenoid, not the maxilla.
   b. The superior rectus muscle originates at the common tendinous ring on the sphenoid, not the maxilla.
   c. **Correct.** The origin of the inferior oblique muscle is the maxilla.
   d. The superior oblique muscle originates on the body of the sphenoid, not the maxilla.

   REF: p. 487

28. ANS: a

a. **Correct.** Intorsion is *not* an action of the inferior rectus muscle.
b. Extorsion is an action of the inferior rectus muscle.
c. Adduction is an action of the inferior rectus muscle.
d. Depression is an action of the inferior rectus muscle.

REF: p. 487

29. ANS: d

a. The trochlear nerve passes through the superior orbital fissure.
b. The inferior ophthalmic vein passes through the superior orbital fissure.
c. The superior ophthalmic vein passes through the superior orbital fissure.
d. **Correct.** The posterior ethmoidal nerve and vessels pass through the posterior ethmoidal foramen, not the superior orbital fissure.

REF: p. 495

30. ANS: d

a. The zygomatic nerve passes through the inferior orbital fissure.
b. The infraorbital nerve passes through the inferior orbital fissure.
c. A branch of the inferior ophthalmic vein passes through the inferior orbital fissure.
d. **Correct.** The superior ophthalmic vein passes through the superior orbital fissure, not the inferior orbital fissure.

REF: p. 495

31. ANS: b

a. The fascia bulbi, not the fascia alar, is also known as Tenon's capsule.
b. **Correct.** The fascia bulbi is also known as Tenon's capsule.
c. The fascia bulbi, not the palpebral fascia, is also known as Tenon's capsule.
d. The fascia bulbi, not the infrahyoid fascia, is also known as Tenon's capsule.

REF: p. 484

32. ANS: c

a. The lens is connected to the ciliary body by suspensory ligaments, not the ora serrata.
b. The lens is connected to the ciliary body by suspensory ligaments, not the inferior tarsus.
c. **Correct.** Suspensory ligaments connect the lens to the ciliary body.
d. The lens is connected to the ciliary body by suspensory ligaments, not the superior tarsal muscle.

REF: p. 486

CHAPTER 20

Autonomics of the Head and Neck

Multiple Choice

1. The autonomic nervous system (ANS) provides innervation to all, EXCEPT
   a. glands.
   b. smooth muscle.
   c. skeletal muscle.
   d. cardiac muscle.

2. Homeostasis of the body is maintained as which structure applies control over the ANS?
   a. Caudate nucleus.
   b. Cerebellum.
   c. Hippocampus.
   d. Hypothalamus.

3. The ANS uses which chain system?
   a. 1-neuron.
   b. 2-neuron.
   c. 3-neuron.
   d. 4-neuron.

4. The cell bodies of preganglionic neurons are found in which location?
   a. The effector organs.
   b. The autonomic ganglia.
   c. The central nervous system.
   d. The peripheral nervous system.

5. The ANS is divided into which 2 parts?
   a. Enteric and somatic.
   b. Central and peripheral.
   c. Somatic and sympathetic.
   d. Sympathetic and parasympathetic.

6. Organs usually receive which type of innervation in the ANS?
   a. Dual.
   b. Single.
   c. Inhibitory.
   d. Protagonist.

7. The two main neurotransmitters utilized in the synapses of the ANS are norepinephrine and
   a. dopamine.
   b. epinephrine.
   c. acetylcholine.
   d. phenethylamine.

8. Norepinephrine is typically used at which of the following synapses in the ANS?
   a. Between Sympathetic preganglionic and sympathetic postganglionic fibers.
   b. Between Sympathetic postganglionic and effector organs.
   c. Between Parasympathetic preganglionic and parasympathetic postganglionic fibers.
   d. Between Parasympathetic postganglionic and effector organs.

9. Which ANS fibers are associated with muscarinic receptors?
   a. Sympathetic preganglionic.
   b. Sympathetic postganglionic.
   c. Parasympathetic preganglionic.
   d. Parasympathetic postganglionic.

10. The nerve cell bodies of which fiber are located in the sympathetic chain?
   a. Sympathetic preganglionic.
   b. Sympathetic postganglionic.
   c. Parasympathetic preganglionic.
   d. Parasympathetic postganglionic.

11. Which fibers of the ANS are associated with alpha or beta receptors?
   a. Sympathetic preganglionic.
   b. Sympathetic postganglionic.
   c. Parasympathetic preganglionic.
   d. Parasympathetic postganglionic.

12. Sympathetic fibers arise from which structure?
   a. Cranial nerve X.
   b. Sacral fibers 2–4.
   c. Cranial nerve IX.
   d. Lumbar fibers 1 and 2.

13. Which cranial nerve does NOT give rise to craniosacral fibers?
   a. X.
   b. XI.
   c. III.
   d. VII.

14. What type of receptor is located between Preganglionic fibers and Postganglionic fibers?
   a. Beta.
   b. Alpha.
   c. Nicotinic.
   d. Muscarinic.

15. Which fiber synapse directly on Salivary glands to cause secretion?
   a. Sympathetic preganglionic.
   b. Sympathetic postganglionic.
   c. Parasympathetic preganglionic.
   d. Parasympathetic postganglionic.

Feedback

1. ANS: c
   a. Innervation to the glands of the body is provided by the ANS.
   b. Innervation to smooth muscle is provided by the ANS.
   c. **Correct.** Innervation to skeletal muscle is provided by the somatic nervous system, not the ANS.
   d. Innervation to cardiac muscle is provided by the ANS.

   REF: p. 512

2. ANS: d
   a. Homeostasis of the body is maintained as the hypothalamus, not the caudate nucleus, applies control over the ANS.
   b. Homeostasis of the body is maintained as the hypothalamus, not the cerebellum, applies control over the ANS.
   c. Homeostasis of the body is maintained as the hypothalamus, not the hippocampus, applies control over the ANS.
   d. **Correct.** Homeostasis of the body is maintained as the hypothalamus applies control over the ANS.

   REF: p. 512

3. ANS: b
   a. A 2-neuron, not 1-neuron, chain system is used by the ANS.
   b. **Correct.** A 2-neuron chain system is used by the ANS.
   c. A 2-neuron, not 3-neuron, chain system is used by the ANS.
   d. A 2-neuron, not 4-neuron, chain system is used by the ANS.

   REF: p. 512

4. ANS: c
   a. The cell bodies of preganglionic neurons are found in the central nervous system, not the effector organs.
   b. The cell bodies of preganglionic neurons are found in the central nervous system, not the autonomic ganglia.
   c. **Correct.** The cell bodies of preganglionic neurons are found in the central nervous system.
   d. The cell bodies of preganglionic neurons are found in the central nervous system, not the peripheral nervous system.

   REF: p. 512

5. ANS: d
   a. The two divisions of the ANS are the sympathetic and parasympathetic, not the enteric and somatic, nervous systems.
   b. The two divisions of the ANS are the sympathetic and parasympathetic, not the central and peripheral, nervous systems.
   c. The two divisions of the ANS are the sympathetic and parasympathetic, not the somatic and sympathetic, nervous systems.
   d. **Correct.** The two divisions of the ANS are the sympathetic and parasympathetic nervous systems.

   REF: p. 512

6. ANS: a
   a. **Correct.** Organs innervated by the ANS usually receive dual innervation.
   b. Organs innervated by the ANS usually receive dual, not single, innervation.
   c. Organs innervated by the ANS usually receive dual, not inhibitory, innervation.
   d. Organs innervated by the ANS usually receive dual, not protagonist, innervation.

   REF: p. 512

7. ANS: c
   a. The two main neurotransmitters utilized in the synapses of the ANS are norepinephrine and acetylcholine, not dopamine.
   b. The two main neurotransmitters utilized in the synapses of the ANS are norepinephrine and acetylcholine, not epinephrine.
   c. **Correct.** The two main neurotransmitters utilized in the synapses of the ANS are norepinephrine and acetylcholine.
   d. The two main neurotransmitters utilized in the synapses of the ANS are norepinephrine and acetylcholine, not phenethylamine.

   REF: p. 512

8. ANS: b
   a. Norepinephrine is typically used at the synapse between sympathetic postganglionic fibers and effector organs, not sympathetic preganglionic fibers and sympathetic postganglionic fibers.
   b. **Correct.** Norepinephrine is typically used at the synapse between sympathetic postganglionic fibers and effector organs of the ANS.
   c. Norepinephrine is typically used at the synapse between sympathetic postganglionic fibers and effector organs, not parasympathetic preganglionic fibers and parasympathetic postganglionic fibers.
   d. Norepinephrine is typically used at the synapse between sympathetic postganglionic fibers and effector organs, not parasympathetic postganglionic fibers and effector organs.

   REF: p. 515

9. ANS: d
   a. Parasympathetic postganglionic, not sympathetic preganglionic, fibers utilize acetylcholine at the synapse with the muscarinic receptor.
   b. Parasympathetic postganglionic, not sympathetic postganglionic, fibers utilize acetylcholine at the synapse with the muscarinic receptor.
   c. Parasympathetic postganglionic, not parasympathetic preganglionic, fibers utilize acetylcholine at the synapse with the muscarinic receptor.
   d. **Correct.** Parasympathetic postganglionic fibers utilize acetylcholine at the synapse with the muscarinic receptor.

REF: p. 515

10. ANS: b
   a. The nerve cell bodies of sympathetic postganglionic fibers, not sympathetic preganglionic fibers, are located in the sympathetic chain.
   b. **Correct.** The nerve cell bodies of sympathetic postganglionic fibers are located in the sympathetic chain.
   c. The nerve cell bodies of sympathetic postganglionic fibers, not parasympathetic preganglionic fibers, are located in the sympathetic chain.
   d. The nerve cell bodies of sympathetic postganglionic fibers, not parasympathetic postganglionic fibers, are located in the sympathetic chain.

REF: p. 515

11. ANS: b
   a. The sympathetic postganglionic fibers, not the sympathetic preganglionic fibers, use norepinephrine at the synapse with the alpha or beta receptor.
   b. **Correct.** The sympathetic postganglionic fibers use norepinephrine at the synapse with the alpha or beta receptor.
   c. The sympathetic postganglionic fibers, not the parasympathetic preganglionic fibers, use norepinephrine at the synapse with the alpha or beta receptor.
   d. The sympathetic postganglionic fibers, not the parasympathetic postganglionic fibers, use norepinephrine at the synapse with the alpha or beta receptor.

REF: p. 515

12. ANS: d
   a. Sympathetic fibers arise from lumbar fibers 1 and 2, not cranial nerve X.
   b. Sympathetic fibers arise from lumbar fibers 1 and 2, not sacral fibers 2–4.
   c. Sympathetic fibers arise from lumbar fibers 1 and 2, not cranial nerve IX.
   d. **Correct.** Sympathetic fibers arise from lumbar fibers 1 and 2, as well as thoracic fibers 1–12.

REF: p. 515

13. ANS: b
   a. Cranial nerve X gives rise to craniosacral fibers.
   b. **Correct.** Cranial nerve XI does not give rise to craniosacral fibers.
   c. Cranial nerve III gives rise to craniosacral fibers.
   d. Cranial nerve VII gives rise to craniosacral fibers.

   REF: p. 515

14. ANS: c
   a. Nicotinic receptors, not beta receptors, are located between Preganglionic fibers and Postganglionic fibers.
   b. Nicotinic receptors, not alpha receptors, are located between Preganglionic fibers and Postganglionic fibers.
   c. **Correct.** Nicotinic receptors are located between Preganglionic fibers and Postganglionic fibers.
   d. Nicotinic receptors, not muscarinic receptors, are located between Preganglionic fibers and Postganglionic fibers.

   REF: p. 515

15. ANS: d
   a. Parasympathetic postganglionic fibers, not sympathetic preganglionic fibers, synapse directly on Salivary glands to cause secretion.
   b. Parasympathetic postganglionic fibers, not sympathetic postganglionic fibers, synapse directly on Salivary glands to cause secretion.
   c. Parasympathetic postganglionic fibers, not parasympathetic preganglionic fibers, synapse directly on Salivary glands to cause secretion.
   d. **Correct.** Parasympathetic postganglionic fibers synapse directly on Salivary glands to cause secretion.

   REF: pp. 518, 525

CHAPTER 21

Intraoral Injections

Multiple Choice

1. The greater palatine nerve exits which of the following foramen?
   a. Greater palatine foramen.
   b. Lesser palatine foramen.
   c. Incisive foramen.
   d. Infraorbital foramen.

2. The injection site of the greater palatine nerve block is
   a. within the incisive canal.
   b. mesial to the maxillary 1st molar.
   c. posterior and mesial to the maxillary 2nd molar.
   d. within the mucobuccal fold superior to the maxillary 2nd premolar.

3. When administering the greater palatine nerve block, the needle is advanced until it contacts which structure?
   a. Soft palate.
   b. Hard palate.
   c. Alveolar ridge.
   d. Bone of the infraorbital foramen.

4. Which is used to locate the greater palatine foramen?
   a. Needle.
   b. Hemostat.
   c. Tip of finger.
   d. Cotton swab applicator.

5. Which tissues are anesthetized by the greater palatine nerve block?
   a. Hard palate.
   b. Buccal gingiva of the molars.
   c. Lingual gingiva of the premolars.
   d. All maxillary gingiva and teeth.

6. The middle superior alveolar nerve is present in which percentage of individuals?
   a. 10%.
   b. 30%.
   c. 70%.
   d. 90%.

7. Which area of the maxillary 1st molar may be innervated by the middle superior alveolar nerve?
  a. Entire tooth.
  b. Lingual root.
  c. Distobuccal root.
  d. Mesiobuccal root.

8. The middle superior alveolar nerve block will completely anesthetize maxillary
  a. incisors.
  b. canines.
  c. premolars.
  d. molars.

9. Gingiva in which location is anesthetized by the middle superior alveolar nerve block?
  a. Buccal gingiva adjacent to the maxillary molars.
  b. Lingual gingiva adjacent to the mandibular molars.
  c. Buccal gingiva adjacent to maxillary premolars and mesial 1st molar.
  d. Lingual gingiva adjacent to mandibular premolars and mesial 1st molar.

10. To administer the middle superior alveolar nerve block, the needle is inserted superior to which maxillary tooth?
  a. Canine.
  b. 1st molar.
  c. 1st premolar.
  d. 2nd premolar.

11. Which injection is a common substitute for the middle superior alveolar nerve block?
  a. Local infiltration.
  b. Infraorbital nerve block.
  c. Nasopalatine nerve block.
  d. Anterior superior alveolar nerve block.

12. When administering a middle superior alveolar injection, the needle is advanced until the tip is in which position to the desired apex?
  a. Mesial.
  b. Lateral.
  c. Inferior.
  d. Superior.

13. A risk of administering the infraorbital injection is injury to the patient's
  a. lip.
  b. eye.
  c. nose.
  d. palate.

14. Which nerve is NOT blocked by the infraorbital injection?
  a. Infraorbital.
  b. Greater palatine.
  c. Middle superior alveolar.
  d. Anterior superior alveolar.

15. Which maxillary tooth is NOT anesthetized by the infraorbital nerve block?
   a. Canine.
   b. 2nd molar.
   c. 1st premolar.
   d. Central incisor.

16. Which structure is NOT anesthetized by the anterior superior alveolar nerve block?
   a. Nose.
   b. Upper lip.
   c. Lower lip.
   d. Lower eyelid.

17. When administering the infraorbital/anterior superior alveolar nerve block, the needle is inserted at the mucobuccal fold superior to which maxillary tooth?
   a. Canine.
   b. 1st molar.
   c. 1st premolar.
   d. 2nd premolar.

18. When administering the infraorbital/anterior superior alveolar nerve block, the needle is advanced in which path relative to the long axis of the tooth?
   a. Parallel.
   b. Perpendicular.
   c. 30° angle.
   d. 45° angle.

19. The maxillary division block anesthetizes a major division of which cranial nerve?
   a. Facial.
   b. Vagus.
   c. Trigeminal.
   d. Glossopharyngeal.

20. Use of the maxillary division block will achieve which type of anesthesia?
   a. Bimaxillary.
   b. Trimaxillary.
   c. Hemimaxillary.
   d. Full maxillary.

21. Which nerve is NOT anesthetized with a maxillary division block?
   a. Infraorbital.
   b. Nasopalatine.
   c. Inferior alveolar.
   d. Middle superior alveolar.

22. A maxillary division block anesthetizes each area, EXCEPT one. Which is the EXCEPTION?
   a. Cheek.
   b. Lower eyelid.
   c. Palatal gingiva.
   d. Maxillary teeth.

23. Anesthetic is deposited in which structure to achieve a maxillary division block?
   a. Incisive foramen.
   b. Infraorbital foramen.
   c. Pterygopalatine fossa.
   d. Lesser palatine foramen.

24. To administer the maxillary division block, which foramen is located?
   a. Incisive.
   b. Infraorbital.
   c. Lesser palatine.
   d. Greater palatine.

25. When administering a maxillary division block, the needle is advanced approximately
   a. 18–20 mm.
   b. 22–24 mm.
   c. 25–27 mm.
   d. 28–30 mm.

26. Which structure is affected if anesthetic is deposited superior to the pterygopalatine fossa?
   a. Eye.
   b. Nose.
   c. Tongue.
   d. Parotid salivary gland.

27. Which action is recommended when needle resistance is met during passage of the maxillary division block?
   a. Force the needle.
   b. Withdraw the needle.
   c. Rotate the needle and advance again.
   d. Stop and deposit at the point of resistance.

Feedback

1. ANS: a
   a. **Correct.** The greater palatine nerve exits the greater palatine foramen.
   b. The greater palatine nerve exits the greater palatine foramen, not the lesser palatine foramen.
   c. The greater palatine nerve exits the greater palatine foramen, not the incisive foramen.
   d. The greater palatine nerve exits the greater palatine foramen, not the infraorbital foramen.

   REF: p. 550

2. ANS: c

a. The injection site of the greater palatine nerve block is usually posterior and mesial to the maxillary 2nd molar, not within the incisive canal.
b. The injection site of the greater palatine nerve block is usually posterior and mesial to the maxillary 2nd molar, not mesial to the maxillary 1st molar.
c. **Correct.** The deposition site of the greater palatine nerve block is usually posterior and mesial to the maxillary 2nd molar.
d. The injection site of the greater palatine nerve block is usually posterior and mesial to the maxillary 2nd molar, not within the mucobuccal fold superior to the maxillary 2nd premolar.

REF: p. 550

3. ANS: b

a. In the greater palatine nerve block, the needle is advanced until it contacts the hard, not soft, palate.
b. **Correct.** When administering the greater palatine nerve block, the needle is advanced until it contacts the hard palate.
c. In the greater palatine nerve block, the needle is advanced until it contacts the hard palate, not the alveolar ridge.
d. In the greater palatine nerve block, the needle is advanced until it contacts the hard palate, not the bone of the infraorbital foramen.

REF: p. 550

4. ANS: d

a. A cotton swab applicator, not the needle, should be used to locate the greater palatine foramen.
b. A cotton swab applicator, not hemostat, should be used to locate the greater palatine foramen.
c. A cotton swab applicator, not the tip of the finger, should be used to locate the greater palatine foramen.
d. **Correct.** A cotton swab applicator should be used to locate the greater palatine foramen.

REF: p. 550

5. ANS: a

a. **Correct.** The tissues of the hard palate are anesthetized by the greater palatine nerve block.
b. The tissues of the hard palate, not buccal gingiva, are anesthetized by the greater palatine nerve block.
c. The tissues of the hard palate, not lingual gingiva, are anesthetized by the greater palatine nerve block.
d. The tissues of the hard palate, not maxillary gingiva and teeth, are anesthetized by the greater palatine nerve block.

REF: p. 550

6. ANS: b

a. The middle superior alveolar nerve is present in about 30%, not 10%, of all people.
b. **Correct.** The middle superior alveolar nerve is present in about 30% of all people.
c. The middle superior alveolar nerve is present in about 30%, not 70%, of all people.
d. The middle superior alveolar nerve is present in about 30%, not 90%, of all people.

REF: p. 551

7. ANS: d

a. The mesiobuccal root, not the entire maxillary 1st molar, may be innervated by the middle superior alveolar nerve.
b. The mesiobuccal root, not the lingual root, of the maxillary 1st molar may be innervated by the middle superior alveolar nerve.
c. The mesiobuccal root, not the distobuccal root, of the maxillary 1st molar may be innervated by the middle superior alveolar nerve.
d. **Correct.** The mesiobuccal root of the maxillary 1st molar may be innervated by the middle superior alveolar nerve.

REF: p. 551

8. ANS: c

a. The middle superior alveolar nerve block will completely anesthetize the maxillary premolars, not incisors.
b. The middle superior alveolar nerve block will completely anesthetize the maxillary premolars, not the canines.
c. **Correct.** The middle superior alveolar nerve block will completely anesthetize the maxillary premolars.
d. The middle superior alveolar nerve block will completely anesthetize the maxillary premolars, not molars.

REF: p. 551

9. ANS: c

a. The buccal gingiva adjacent to the maxillary molars is *not* anesthetized by the middle superior alveolar nerve block.
b. Lingual gingiva is *not* anesthetized by the middle superior alveolar nerve block.
c. **Correct.** The buccal gingiva adjacent to the maxillary premolars, and in some cases the gingiva adjacent to the mesiobuccal root of the maxillary 1st molar, is anesthetized by the middle superior alveolar nerve block.
d. Lingual gingiva is *not* anesthetized by the middle superior alveolar nerve block.

REF: p. 551

10. ANS: d

a. To administer the middle superior alveolar nerve block, the needle is inserted superior to the maxillary 2nd premolar, not the canine.
b. To administer the middle superior alveolar nerve block, the needle is inserted superior to the maxillary 2nd premolar, not the 1st molar.
c. To administer the middle superior alveolar nerve block, the needle is inserted superior to the maxillary 2nd premolar, not the 1st premolar.
d. **Correct.** To administer the middle superior alveolar nerve block, the needle is inserted superior to the maxillary 2nd premolar.

REF: p. 551

11. ANS: a

a. **Correct.** A local infiltration injection is a common substitute for the middle superior alveolar nerve block.
b. A local infiltration injection, not an infraorbital nerve block, is a common substitute for the middle superior alveolar nerve block.
c. A local infiltration injection, not a nasopalatine nerve block, is a common substitute for the middle superior alveolar nerve block.
d. A local infiltration injection, not the anterior superior alveolar nerve block, is a common substitute for the middle superior alveolar nerve block.

REF: p. 551

12. ANS: d

a. When administering a middle superior alveolar injection, the needle is advanced until the tip is superior, not mesial, to the apex of the maxillary 2nd premolar.
b. When administering a middle superior alveolar injection, the needle is advanced until the tip is superior, not lateral, to the apex of the maxillary 2nd premolar.
c. When administering a middle superior alveolar injection, the needle is advanced until the tip is superior, not inferior, to the apex of the maxillary 2nd premolar.
d. **Correct.** When administering a middle superior alveolar injection, the needle is advanced until the tip is superior to the apex of the maxillary 2nd premolar.

REF: p. 551

13. ANS: b

a. A risk of administering the infraorbital injection is injury to the patient's eye, not lip.
b. **Correct.** A risk of administering the infraorbital injection is injury to the patient's eye.
c. A risk of administering the infraorbital injection is injury to the patient's eye, not nose.
d. A risk of administering the infraorbital injection is injury to the patient's eye, not palate.

REF: p. 552

14. ANS: b

a. The infraorbital nerve block anesthetizes the infraorbital nerve.
b. **Correct.** The infraorbital nerve block does *not* anesthetize the greater palatine nerve.
c. The infraorbital nerve block anesthetizes the middle superior alveolar nerve.
d. The infraorbital nerve block anesthetizes the anterior superior alveolar nerve.

REF: p. 552

15. ANS: b

a. The maxillary canine is anesthetized by the infraorbital nerve block.
b. **Correct.** The 2nd maxillary molar is *not* anesthetized by the infraorbital nerve block.
c. The maxillary 1st premolar is anesthetized by the infraorbital nerve block.
d. The maxillary central incisor is anesthetized by the infraorbital nerve block.

REF: p. 552

16. ANS: c

a. The lateral aspect of the nose is anesthetized by the anterior superior nerve block.
b. The upper lip is anesthetized by the anterior superior nerve block.
c. **Correct.** The lower lip is *not* anesthetized by the anterior superior nerve block.
d. The lower eyelid is anesthetized by the anterior superior nerve block.

REF: p. 552

17. ANS: c

a. The needle is inserted at the mucobuccal fold superior to the maxillary 1st premolar, not the canine, when administering the infraorbital/anterior superior alveolar nerve block.
b. The needle is inserted at the mucobuccal fold superior to the maxillary 1st premolar, not the 1st molar, when administering the infraorbital/anterior superior alveolar nerve block.
c. **Correct.** The needle is inserted at the mucobuccal fold superior to the maxillary 1st premolar when administering the infraorbital/anterior superior alveolar nerve block.
d. The needle is inserted at the mucobuccal fold superior to the maxillary 1st premolar, not the 2nd premolar, when administering the infraorbital/anterior superior alveolar nerve block.

REF: p. 552

18. ANS: a

a. **Correct.** The needle is advanced parallel to the long axis of the tooth when administering the infraorbital/anterior superior alveolar nerve block.
b. The needle is advanced parallel, not perpendicular, to the long axis of the tooth when administering the infraorbital/anterior superior alveolar nerve block.
c. The needle is advanced parallel, not at a 30° angle, to the long axis of the tooth when administering the infraorbital/anterior superior alveolar nerve block.
d. The needle is advanced parallel, not at a 45° angle, to the long axis of the tooth when administering the infraorbital/anterior superior alveolar nerve block.

REF: p. 552

19. ANS: c

a. The maxillary division block anesthetizes the maxillary division of the trigeminal nerve, not the facial nerve.
b. The maxillary division block anesthetizes the maxillary division of the trigeminal nerve, not the vagus nerve.
c. **Correct.** The maxillary division block anesthetizes the maxillary division of the trigeminal nerve.
d. The maxillary division block anesthetizes the maxillary division of the trigeminal nerve, not the glossopharyngeal nerve.

REF: p. 553

20. ANS: c

a. Use of the maxillary division block will achieve hemimaxillary, not bimaxillary, anesthesia.
b. Use of the maxillary division block will achieve hemimaxillary, not trimaxillary, anesthesia.
c. **Correct.** Use of the maxillary division block will achieve hemimaxillary anesthesia.
d. Use of the maxillary division block will achieve hemimaxillary, not full maxillary, anesthesia.

REF: p. 553

21. ANS: c

a. The infraorbital nerve is anesthetized with a maxillary division block.
b. The nasopalatine nerve is anesthetized with a maxillary division block.
c. **Correct.** The inferior alveolar nerve is *not* anesthetized with a maxillary division block.
d. The middle superior alveolar nerve is anesthetized with a maxillary division block.

REF: p. 553

22. ANS: a

a. **Correct.** The maxillary division block does *not* anesthetize the cheek.
b. The lower eyelid is anesthetized by a maxillary division block.
c. The palatal gingiva is anesthetized by a maxillary division block.
d. All maxillary teeth are anesthetized by a maxillary division block.

REF: p. 553

23. ANS: c

a. Anesthetic is deposited in the pterygopalatine fossa, not the incisive foramen, to achieve a maxillary division block.
b. Anesthetic is deposited in the pterygopalatine fossa, not the infraorbital foramen, to achieve a maxillary division block.
c. **Correct.** Anesthetic is deposited in the pterygopalatine fossa to achieve a maxillary division block.
d. Anesthetic is deposited in the pterygopalatine fossa, not the lesser palatine foramen, to achieve a maxillary division block.

REF: p. 553

24. ANS: d

a. The greater palatine, not incisive, foramen is initially located to administer the maxillary division block.
b. The greater palatine, not infraorbital, foramen is initially located to administer the maxillary division block.
c. The greater, not lesser, palatine foramen is initially located to administer the maxillary division block.
d. **Correct.** The greater palatine foramen is initially located to administer the maxillary division block.

REF: p. 553

25. ANS: d

a. When administering a maxillary division block, the needle should be advanced approximately 28–30 mm, not 18–20 mm.
b. When administering a maxillary division block, the needle should be advanced approximately 28–30 mm, not 22–24 mm.
c. When administering a maxillary division block, the needle should be advanced approximately 28–30 mm, not 25–27 mm.
d. **Correct.** When administering a maxillary division block, the needle should be advanced approximately 28–30 mm.

REF: p. 553

26. ANS: a

a. **Correct.** The eye will be affected if anesthetic is deposited superior to the pterygopalatine fossa.
b. The eye, not the nose, will be affected if anesthetic is deposited superior to the pterygopalatine fossa.
c. The eye, not the tongue, will be affected if anesthetic is deposited superior to the pterygopalatine fossa.
d. The eye, not the parotid salivary gland, will be affected if anesthetic is deposited superior to the pterygopalatine fossa.

REF: p. 553

27. ANS: c

a. If resistance is met during the passage of the maxillary division block, rotate the needle and attempt to advance it again; do not force the needle.
b. If resistance is met during the passage of the maxillary division block, rotate the needle and attempt to advance it again; do not withdraw the needle.
c. **Correct.** If resistance is met during the passage of the maxillary division block, rotate the needle and attempt to advance it again.
d. If resistance is met during the passage of the maxillary division block, rotate the needle and attempt to advance it again; do not deposit anesthesia at the point of resistance.

REF: p. 553

INDEX

A

abducens (VI) nerve 20, 34
abscess 158
  dentoalveolar 158
  periodontal 158
Adam's apple 148
angular vein 98
ankyloglossia 131
anterior cranial fossa 13
anterior segment, eye 174
anterior superior alveolar nerve 118
anterior superior alveolar nerve block 190
anterior triangle, neck 31–32
aqueous humor 174
artery 91
  infraorbital 91
  sphenopalatine 91
aryepiglottic fold 149
arytenoid cartilage 149
atlas (C1) 13
auditory tube 164
auricle 163–164, 166
auricularis anterior muscle 42
auriculotemporal nerve 51, 83
autonomic nervous system 182–187
axis (C2) 12

B

balance 22, 163–164
bilaminar zone, TMJ 81
"blind spot" 175
blinking 42
brachiocephalic vein 34
buccal gingiva 189
buccal nerve 73
buccal vein 115
buccinator muscle 53, 72, 114

C

Carotid sheath 156
cementoenamel junction 117
Cervical emphysema 158
cervical vertebrae 12–13, 147
cheeks 114, 116, 190
choanae, nasal cavity 100
chorda tympani 63
choroid 174
ciliary body 174, 176
ciliary muscle 174
cochlea 165
collateral ligaments, TMJ 82
connective tissue 41, 80
constrictors 141
  inferior 142
  middle 141
  superior 142
cornea 175
corniculate cartilage 149
corrugator supercilii muscle 42
cranial nerves 19–30, 34, 40, 70, 99, 108, 130, 183
cranium 10
cribriform plate 99
cricoarytenoid joint 149
cricoid cartilage 97, 148–150
cricothyroid joint 149
crown of tooth 117

D

deep lingual vein 130
dens 13
dental arch 117
digastric muscle 33, 51
digastric triangle 32
disc, temporomandibular joint 80–89

E

ears 40–43, 163–171
  auditory portion 163–165
  external 163–164, 166
  inner 165
  middle 164
  vestibular portion 163–165
efferent, definition 20
elastic cartilage 150, 166
embryology 1–4
endolymph 165
epiglottic tubercle 149
epiglottis 148, 150
epithelium 100, 107, 114, 128, 131, 166
ethmoid bone 12, 172
ethmoid sinus 107
external acoustic meatus 166
external carotid artery 32, 34, 41, 51–52
external jugular vein 53
external nasal nerve 99
eye 172–181, 189, 191
eye muscles 175

F
facial artery 42, 98, 115
facial bones 40
facial expression, muscles 40–49, 115
facial nerve 22, 41–42, 51, 61, 115
facial vein 98, 131
fascia 140, 156–158
  alar 156
  buccopharyngeal 140
  investing 156
  pharyngobasilar 140
  pretracheal 156
  prevertebral 156
fascia bulbi 173, 176
fauces
  anterior pillars 131
fissure 90
  inferior orbital 90
  pterygomaxillary 91
fontanel
  posterior 3
foramen 90
  rotundum 90
  sphenopalatine 90
foramen cecum 12, 131
foramen magnum 11
Fordyce's spots 116
fossa 90
  pterygopalatine 90
frontal bone 10, 12–13, 172
frontal sinus 43, 107–108
functional columns 20–21

G
genioglossus muscle 132
geographic tongue 131
germ layer 1–4
gingiva 115, 118, 130, 189
glenoid fossa 80
glossopharyngeal (IX) nerve 22, 130
great auricular nerve 52
greater palatine foramen 188, 191
greater palatine nerve block 188–189

H
hard palate 115–116, 188
head development 1–9
hearing 163–164
hyaline cartilage 147
hyoglossus muscle 129
hyoid bone 129
hypoglossal nerve 20, 129–130
hypothalamus 182

I
incisive foramen 12, 115
inferior alveolar artery 114, 118
inferior alveolar nerve 190
inferior longitudinal tongue muscle 132
inferior oblique muscle 175
inferior orbital fissure 172, 175
inferior rectus muscle 175
inferior salivatory nucleus 52
infraorbital artery 42, 115
infraorbital canal 109
infraorbital groove 172
infraorbital injection/nerve block 189–190
infraorbital nerve 43, 99, 109
infratemporal fossa 60–69
infratrochlear nerve 99
intermaxillary segment 4
internal laryngeal nerve 130
intraoral injections 188–197
intrinsic muscle 128
iris 174

L
lacrimal bone 97–100, 173
laryngeal prominence 148
Laryngopharynx 141, 150
larynx 147–155
  cartilage 147–148, 150
lateral nasal artery 98
lateral pharyngeal space 53
lateral pterygoid muscle 71
lens 174–175
Lesser's triangle 32
levator palpebrae superioris 175
lingual frenulum 128
lingual nerve 130
lips 3, 114, 190
Ludwig's angina 158

M
malleus 3
mandible 11, 21, 31, 50, 70–71, 80
mandibular foramen 22
mandibular nerve 22, 63, 115
mandibular ramus 71
mandibular vestibule 116
masseteric artery 70
masseter muscle 50–51, 62, 70–71
mastication, muscles 70–79
maxilla 3, 62, 116, 172
maxillary arch 118
maxillary artery 62, 72, 108, 118
maxillary division block 190
maxillary nerve 51

maxillary process 3, 11
maxillary prominence 4
maxillary sinus 108–109
maxillary vein 41, 52, 83
membranous labyrinth 164–165
mental artery/vein 114
mental nerve 118
mesoderm 1
middle nasal concha 100
middle superior alveolar nerve 188–189
middle superior alveolar nerve block 189
middle temporal artery 60, 72
middle temporal vein 72–73
molars 51, 117, 188–190
muscarinic receptors 183

N

nasal cavity and nose 97–106
nasal septum 100
nasolacrimal duct 100
Nasopharynx 140, 164
neck 1–9, 31–39
nerve 90–92
  deep petrosal 92
  infraorbital 91
  of pterygoid canal 90
neural crest 1
neurocranium 3
neurotransmitters 183
norepinephrine 183
normal frontalis 12
norma verticalis 10
nostril 43

O

obliquus capitis inferior 33
occipital bone 10, 12–13
oculomotor (III) nerve 20, 172
olfactory nerve 20
omohyoid muscle 33
ophthalmic artery 42, 97, 108
ophthalmic nerve 21
optic canal 12–13
optic disc 174–175
optic foramen 172–176
optic nerve 12, 21, 172–176
oral cavity 114–139
orbicularis oris muscle 42
orbit 21, 42–43, 98, 172–181
orbital septum 173
Oropharynx 141
osseous labyrinth 165
ossicles, ear 164
osteology 10–18
otic ganglion 63

P

palate 4, 115–116, 188
palatoglossal arches 131
palatoglossus muscle 116, 129
Palatopharyngeus 141
papillae, tongue 128, 131
paranasal sinuses 107–113
parasympathetic nervous system 182–184
parietal bone 11
parotid bed 50–59
parotid gland 34, 41–42, 59–59
Pericoronitis 158
perilymph 165
pharyngeal arches 1–4, 22, 40, 70
pharyngeal cleft 2
pharyngeal membrane 2
Pharyngeal plexus 130, 140
pharyngeal pouches 1–2
pharynx 140–146, 150
plica fimbriata 128
posterior auricular artery 53
posterior deep temporal nerve 21, 83
posterior segment
  eye 174
posterior superior alveolar nerve 63, 109
posterior triangle, neck 32, 34
postganglionic fibers 53, 183–184
preganglionic neurons 181–182
premolars 118, 189–190
pseudostratified columnar epithelium 99
pterion 11
pterygoid artery 72
pterygoid fovea 71
pterygoid plexus 52, 61–62, 72–73, 118
pterygopalatine fossa 109, 191

R

recess 141
  pharyngeal 141
  piriform 141
retina 174–175
retrodiscal pad 82
retromandibular vein 41, 52

S

salivary gland 50–53, 118–119, 184
Salpingopharyngeus 141
scalp 40–49

scaphoid fossa 166
sclera 174
sebaceous glands 116
sensations 22
skull 3, 10–13, 70–73, 172
soft palate 116
sound 163–164
spaces 156–158
  danger 156
  lateral pharyngeal 157
  masticator 157
  peritonsillar 157
  pretracheal 156
  prevertebral 158
  retro pharyngeal 156
  sub maxillary 157
  sublingual 157
  submandibular 157
  superficial 157
  suprahyoid 156
special functional columns 20
sphenoid bone 10–11, 40, 100, 172–173
sphenoid sinus 107–108
sphenopalatine foramen 100
spinal accessory (XI) nerve 23, 34, 183
spinous process 12
stapes 163–164
Stensen's duct 51, 119
sternocleidomastoid muscle 23
sternothyroid muscle 33
stomodeum 3
styloglossus muscle 129, 132
stylohyoid muscle 33
styloid process 11, 62
Stylopharyngeus 142
subclavian artery/vein 33–34
sublingual artery 130
sublingual gland 130
submandibular triangle 32
submental artery/vein 118, 131
suboccipital triangle 41
supercilii muscle 61
superficial temporal artery 60, 97
superficial temporal nerve 51
superficial temporal vein 61, 83
superior dental plexus 109
superior labial artery 98
superior longitudinal tongue muscle 132
superior oblique muscle 21
superior ophthalmic artery/vein 98, 175
superior orbital fissure 12, 172, 175
superior pharyngeal constrictor 116
superior temporal vein 73
suprahyoid region, neck 32
supratrochlear nerve 20
sutures 10–11
sympathetic nervous system 52, 182–183
synovial fluid 82

T
taste 22
taste buds 128, 130
teeth 11, 22, 114–119
temporal bone 11, 13, 80–83, 164, 166
temporal fossa 60–69
temporalis muscle 60–61, 71, 73, 83
temporomandibular joint (TMJ) 73, 80–89
  blood supply 82–83
  capsule 82
  compartments 80–81
  ligaments 82
Tenon's capsule (fascia bulbi) 173, 176
thyroid cartilage 148–150
thyroid gland 147, 150
thyroid notch 148
tongue 116, 128–139, 147
  innervation 4, 23
  muscles 128–129, 131–132
trachea 147, 150
transverse facial artery 52, 72
transverse ligament of atlas 13
trapezius muscle 31, 33
trigeminal ganglion 22
trigeminal nerve 2, 20–21, 33, 43, 83, 115
  mandibular division 61, 109
  maxillary division 99, 108–109, 118, 190
  muscles of mastication 73
  ophthalmic division 99, 108
trochlear (IV) nerve 20–21
2-neuron chain system 182
tympanic cavity 164
tympanic membrane 164–166
tympanic plexus 165

U
uveal tract 174

V
vagus nerve 34, 130
venous plexus 61
vermilion zone, lips 114
vestibular gland 119
vestibule 97
vestibulocochlear nerve (VIII) 22, 164–165
vibrissae 97
viscerocranium 3, 10
vocal cords 148–149
vomer 11

W
Wormian bones 10

Z
zygomatic arch 60–63, 71
zygomatic bone 11, 173
zygomaticofacial foramen 43
zygomaticotemporal nerve 41
zygomatic process 80
zygomaticus minor muscle 42